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BEE-KEEPER. AND POULTRY CHRONICLE.

A JOURNAL OF GARDENING, RURAL AND DOMESTIC ECONOMY, BOTANY, AND NATURAL HISTORY.

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## TO OUR READERS.

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"THE Editor, of all mankind alive,  
Is bound to know how many Beans make five.  
Nought should escape his penetrating eye,  
From snows that on the Himalayas lie  
Down to the sparkling dewdrops that adorn  
The fragrant Roses at the dawn of morn.  
Birds of the air, and fishes of the sea,  
Should all be known to him who writes the mystic 'we.'

"His vast unbounded learning should embrace  
The varied annals of the human race,  
All downward from the Bible's sacred leaves  
To Ali Baba and the Forty Thieves,"  
Gard'ners from Switzer down to Paxton,  
And Peas from Rounceival to Laxton.  
All books he must have read and shelv'd  
Published since Adam's self in Eden delv'd.

WE assure you, ladies and gentlemen, that this is true, and you expect us to know a great deal more, even to preknow what cannot be preknown; for we have preserved one of your letters in which you inquire whether "the first-created fruit trees required pruning?" and another letter from you is also preserved in which you ask us, "What colour probably an Alderney calf will be?" You kindly inserted envelopes ready for posting, directed and stamped as you always should do, but we are constrained to add you do not always do. So to those queries we replied privately, and, consequently, had not to confess publicly that, though Editors, there are some things we do not know. Let us qualify that confession—we should have written. There are some few things of the future and some of the past unknown to us.

Be assured, however, ladies and gentlemen, that nothing gives us greater pleasure than to receive your inquiries. We sit more upright, we feel our importance—our superlativeness—in proportion to the size of the matutinal heap of letters on our table. We do our best to impart sound information in our replies, and we usually succeed, because we have many minds and as many pens to sustain us. For one and twenty years you have allowed us to aid you; and, cheered on by you as we have been, glad should we be if permitted at the close of two more lustrums to subscribe ourselves,

Your Servants,

THE EDITORS.





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## WEEKLY CALENDAR.

Day of Month.		Day of Week.	JANUARY 6-12, 1870.			Average Temperature near London.			Rain in last 48 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.
Day	Month	Week				Day.	Night.	Mean.	Days.	in.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	p.		
6	Th		Epiphany.			41.1	28.6	34.8	14	7	af	4	15	10	3	af	9	1	6	6	35	7	6
7	F		Length of Day, 9h. 0m.			41.7	29.1	35.4	17	7	8	7	4	6	11	14	10	3	6	35	7	7	7
8	S		Prince Albert Victor of Wales Born.			41.0	30.1	35.5	14	6	8	8	4	26	11	19	11	6	7	0	8	8	8
9	Scn		1 Sunday after Epiphany.			41.2	30.8	36.0	15	6	8	9	4	43	11	19	11	6	7	25	9	9	9
10	M		Plough Monday.			42.0	30.3	36.1	18	5	8	10	4	after	24	0	0	8	7	30	10	10	10
11	Tu		Hilary Term begins.			41.5	30.1	35.8	22	4	8	12	4	22	0	28	1	9	8	11	11	11	11
12	W		Blackbird's song commences.			42.1	29.5	35.8	18	4	8	14	4	47	0	31	2	10	8	37	12	12	12

From observations taken near London during the last four-three years, the average day temperature of the week is 41.5; and its night temperature 29.8. The greatest heat was 54, on the 12th, 1852; and the lowest cold 6, on the 7th and 8th, 1841; and 8th, 1861. The greatest fall of rain was 1.00 inch.

## NEW YEAR'S GIFTS, ET CÆTERA.



NEW YEAR'S morning, seven o'clock—no more sleep, but a half-awake semi-dream condition for one happy half-hour, before the dreadful getting-up to that cold white world.

I am in thought or dream, you may please yourself as to which, good reader. I am in London, and it is New Year's morning. I am up, and walking City-wards. It is early for London: the first omnibuses are coming from their stables, how hollow the long empty things sound as they bump over the crossing or round a corner, and the cad at the end is bounded up in the air, and looks so unlike what he will two hours hence: he looks now a melancholy man, perhaps because his mind is as yet unrelieved of "chaff." On the box sits the equally melancholy-looking driver: he as yet has no word for his friend behind. I pass cab-stands, the horses with their heads drooping low, and the men dismal-looking enough. On further, I notice people are yawning while they remove the shutters at the smaller shops. I see fat slipshod servant girls (how unlike country girls!), who are pretending to tidy the doorsteps, but in reality looking for the postman. I walk on, and reach at length—yes, there it is—Temple Bar, and think how the rebels' grinning heads once stood on the top, after what Scotchmen call the '45. "Happy New Year to ye!" cries one newspaper boy to another. That's the first cheerful sound I have heard. Why, what's that over 171, Fleet Street? A long board, with on it, "OFFICE OF JOURNAL OF HORTICULTURE;" so it is the very place I am seeking, for I know it well, and through the high front window to tall people, like myself, gleam bright pictures of many flowers. Yes, my old friend, "our Journal," holds his or her head-quarters here—his or her, for the floral porcupine hath many female quills. I enter. "A happy New Year," I say with a nod and a smile to two or three well-known faces in the office on my right, and which faces nod and smile, and wish me "A happy New Year" in return. Then up the dark staircase, and a turn to the right, and I stand before the door of the Editors' room. "Come in," I hear in wonderfully silver-sounding tones. "Uh," think I, "that Editor has got a new voice with the New Year. I wonder which it is." When lo! on opening the door, I see sitting at the senior Editor's desk, I knew her at once, a benignant-looking and beautiful fairy, clad in a glittering silver robe, with a silver wand in her right hand. She motioned me with the silver wand to the fire on her right, and I take my place beside her. On the desk at which the fairy sits are heaps upon heaps of letters, for every writer had sent a letter this New Year's morning: these she did not open, but upon touching each with her silver wand a tiny form of the writer appeared before her. There they were, all the members of the staff, gardeners and garden lovers, great botanists, deep-scientific ones, plump pomologists, poultry and pigeon fanciers, prizetakers and those who had not taken prizes (very red in the face these last looked), bee-keepers, contributors of all sorts and ranks, young and old, bald and grey, bearded

and non-bearded, all fashions of clothing, but the good blue apron of the gardener upon very many: while the lady writers, who huddled together and stood in one corner of the large desk-table, had even more varied clothing still, very many had on those most desirable of all dresses, short walking dresses, and not a few those equally sensible things, waterproof cloaks and stout walking boots: and cheeks that told of health resulting from out-door exercise. I looked carefully at the fair group of little ladies, and although there were fair-haired, and dark-haired, and brown-haired, and—as fair as any hair—the silver-grey, yet I did not see, I give my word for it, one "girl of the period;" they all had far too sensible faces for that nonsense. One lady, it is true, had a very large chignon, which the fairy just touched lightly with her silver wand, and with a good-natured smile said, "Very like a Cab-hage, dear: I suppose you are a great kitchen gardener." When the silver wand had touched every letter, and all the tiny forms stood in close array, "My friends," said the fairy, "I am the benignant spirit that presides over 'our Journal,' I watch its course, I see what pleasure it gives, did it dwell upon hard worldly topics I should not heed it, but I see it makes good people better, kind people kinder, and happy people happier; I see that it carries in thought the invalid to his garden, and the citizen to the country home of his childhood. I love flowers, and I fronds and green leaves, I love the feathered and furry pets. I love to hear the bee humming her drowsy lullaby, while I, taking a tiny form, all unseen, couch upon an opening Rose. I am your friend. I am here to wish you all well this New Year's Day. See, my dress is silver, its light colour suits me (here she glanced at the ladies), and I am here also to present you with New Year's gifts, as tokens of my regard." Here she gave tiny silver flowers to each flower-lover, to each the flower he or she loved best, or had been most successful with, to others a Fern, to others little silver models of the bird they loved most, and a silver bee to others.

Then, looking grave, she said, "My name among fairies is Silverine the Courteous. I, your presiding genius, am ever courteous, so also be ye: do not any of you at any time write as if no one ought to dare to advocate an opinion antagonistic to your own. Remember each one has an equal right with you to his own fancy, his own theory, his own argument. Remember Silverine the Courteous; and now a happy New Year to you."

"Well said," I exclaimed from the fireplace, quite forgetting myself, but at the sound of my earthly voice the fairy was gone at once. I looked to desk-table for the large group of little folks, they were all gone: and while I was scarce recovered from my wonder, I heard the steps of two in the room, and a voice by no means fairy like, but very hearty and cheery, and deep-chested, saying, while grasping my hand warmly, "A happy New Year to you. The other Editor was close behind, and he, too, was hearty and cheery. Then the elder said, "There, it is Saturday, and I know you are going home for to-morrow's duty; now sit down on Monday in that snug study of yours in your pretty rectory, and write us a New Year's piece, you have

often done it, and let us have it on Tuesday; there, good-bye, and a happy New Year to all at home." "Ditto," said the other laconically. At once departed, and soon found myself at home to hear about that lying Bill, "the village nuisance;" old Mother Smith's rheumatics; how Mrs. Jones had got, in juvenile phrase, "A new baby," and sundry other bits of village news.

ET CETERA.

HILLTOP RECTORY,

Monday, January 3, 1870

"Et cetera" and other things," but let me take them in order. Let me glance first at gardening. There seems to be a revival of orangeries. I say revival, for although differing by having modern appliances, yet the growth of the Orange in houses called orangeries has been carried on in England since the reign of Charles II., and many a noble mansion in Britain has an ornamental wing still called "The Orangery." Thus it is like the farthingale, then the hoop, then the crinoline—the same idea only carried out differently. May orangeries be as general as orchard houses.

Then we have had earnest efforts to extend the growth of Grapes in the open air; this is also a return to the old ways, and a good return. I wish we could make the cottager a Grape-grower, and growing something better than the old Black Cluster. I wish we could get him to enjoy the watching and understanding the cultivation of his Vine, and then maybe he would enjoy his drop of home-made wine at Christmas-tide and Whitsuntide, when the grown-up boys and girls come and tarry a few hours with the old folks in the old home. To the Rev. George Kemp be all thanks given (I should like to write his name all in capitals), for his encouragement by prizes for Grapes grown in the open air without any protection whatever. I do not know Mr. Kemp, or where he dwells, but his is a hand I should like to shake. Then there is that Lincolnshire Parson (a complimentary word this, persona, the person of the parish), "C. C. E.," of whom "the plain working gardener," as he humbly calls himself, gave his interesting account from the well-cultured garden up to the Sunday's text, and made me hink of the poet's words—

"Say, ye far-travelled clouds, far-seeing hills,  
Among the happiest-looking homes of men  
Scattered all Britain over, through deep glens,  
On airy upland, and by forest rills,  
And o'er wide plains cheered by the lark that trills  
His sky-born warblings—does aught meet your ken,  
Aught that more surely by its aspect fills  
Pure minds with smiles and joy, than the abode  
Of the good priest: a lowly faithful through all hours  
To his high charge, and truly serving God,  
He's not a heart for frowns and frowns?"

Such a one, I am sure, is "C. C. E.," and such hundreds of readers of "our Journal."

But on to others of the "cetera." "Few men," says a recent writer, "are so stupidified that they cannot by a little care select some more or less satisfactory hobby—a selection in which the whole secret of a judicious holiday-making may be said to consist. It is best to take up some amusement for which you have a natural taste, but devotion to any hobby whatsoever is preferable to a cold-blooded dawdling, in obedience to general fashion, after nothing in particular. The happy man who has selected his hobby always excites my admiration, for he is at least able to boast of a genuine enjoyment." This Journal of ours, I humbly think, guides men to suitable and harmless hobbies, and instructs them when they have taken to a hobby. A garden stands first, and ever will in general esteem, as a health-giving innocent hobby. And see the efforts men make to have a garden. Some years ago I called on a gentleman who kept a large school at a seaside watering-place. His house was on a rock by the sea, and built of the very stone quarried from the rock on which it stood. A small playground had been made for the boys, but garden there could be none; yet the gentleman pined for a garden, so he built a small orchard house overlooking the deep sea, and there he, a happy host, took me, a happy visitor. And oh! the pleasure that little orchard house gave him, and there he escaped from the noise and worry of the boys.

But besides a garden, we have to do with other hobbies. The man, age! the woman too, whose home boasts space enough, often takes, and rightly, to poultry: while he who has less room takes to fancy pigeons; and you hear grave men saying of some clerical gentleman, "Now he is given up to Toys." "Fie upon you! you old donkey," an outsider would say; but we know better. Or again, a long six-foot-two man, with a yard of face, tells you "he is now in the Short-faced

fancy," and I think of the "Spectator." Or of a wee little man, that would go down a gas-pipe with room to spare, it is said "he is a Stout bird-fancier." Ah! we know the pleasure these Toys, Short-faces, and Stout birds give—Pigeons all, and beautiful too.

But if there is no room for fowl or Pigeon, not even for those darling fairy-like Pigeons African Owls, with their sweet little chubby faces—faces which that Scotch old bachelor said "were just like things made for kissing." Of course, the things (things indeed!) alluded to being young ladies. N.B.—There is hope of that old bachelor yet. Well, if there is no room for even these Pigeons, there is a hobby to be found in cage birds, the townman's hobby, the invalid's hobby, yea, even a pleasure-giving hobby (I have known it to be so), to those whose only room was their bedroom, and their bed their abode for all the days, as well as all the nights, of many a long year.

As to poultry shows, I want to see a little more variety. Take, for instance, the Game classes. I grant that one of the most beautiful is the Black-breasted Red, but I would rather see many varieties than dozens of one variety, and yet, save at the very largest shows, or only at Birmingham, do we see more than two or three varieties—the Black Reds, a few of the beautiful Duckwings, and one pen or so of Brown Reds. Yet think of the splendid hues of the Black Game cock, the pied beauty of the Piles, then Blues, Puns, the Brassy-wings, and Birchin Yellows. Then, how very rarely we see the Golden Polands; the beautiful Seftridges are getting scarce, while Black Red Game Bantams are exhibited by hundreds and bred by thousands. The popularity of one breed—a very changeable thing in popularity—is likely to be the ruin of other breeds. Let committees look to this, and strive to get many varieties, then there would be more visitors; for to a general eye a hundred Black Reds are all alike. Thus I was very glad to hear of more money this year given to Malays at Birmingham, although they are not my fancy. It would be well if committees offered more and smaller prizes. Extend the classes, but lower the prizes. The honour of winning a cup is everything, it matters not whether its money value be five guineas or three. If something of this sort be not done, many most striking varieties of fowls will die out, as the few who gallantly keep on with an unpopular breed get wearied out at last, receiving no encouragement from committees. Variety attracts, sameness repels. Strangers want to see the French fowls, and would go to shows, but on a second visit they say, "Oh! poultry shows are all alike. See one you see all."

Then, as to Pigeons, something in a lesser degree is applicable. Also, why will not skilled fanciers write more about them? The last year they for the first time have seen "Pigeon Chronicle" added to our titles. Never were such good birds shown, and happily now they meet one's eye at almost every poultry show. The fancy has advanced, and shows have helped the advance; more writing would help it further.

Then, also, a word about cage birds. This is a fancy more universal, owing to circumstances, than either poultry or Pigeons. I am sure lovers of the Canary, especially, will have been gratified by the articles from Mr. Bakston's and Mr. Howarth Ashton's pens. I believe in the words of a letter lying before me, that "the Canary is a civilising and humanising little fellow, so long as he does not hold his court in a publichouse, and where his friends are of the beery stamp. From such associations let us raise him, and let him occupy his proper place as a most interesting ornithological study, and a beautiful object for exhibition. It should not be *infra dig.* to be a Canary man." Some years ago I pleaded that Pigeons should always be shown with poultry, and the thing is done. Now I further plead that, where it is possible (if the show be held in a tent of course it could not be), that a show of cage birds should always be added to poultry and Pigeons. There would be many entries, and a great many, especially ladies, would attend, who otherwise would not be present.

Thus I have ventured to advocate a few improvements, which I trust will be carried out. Flaws I would rather not notice. I would rather forget the painters and stainers—the colourmen I like not. I hope we shall all be spared to go on together through this new year—Editors, writers, and readers. What a variety class we are!—sciences and non-sciences, professionals and amateurs. To the sciences I would say, Be sure and never misapply science, as a good woman did who brought her husband, with a bandage over his eye, to a surgeon of my acquaintance. "What's the matter with your husband, my good woman?" "Why, sir, my husband got a piece of iron

in his eye, and I don't think you will ever get it out, for I laid a magnet on his eye all night, and the bit is in still."

But I must bring this almost-too-long paper to an end. Yet one word to those who have kindly sent contributions to 171, Fleet Street, but which never appeared in print. The writers must not be displeased. Perhaps other and similar, very similar, ones had before appeared, or the columns were very full, or, I may venture, I know, to say that some other good, but never unkind reason forbade their appearance. The authors of rejected contributions must not serve this Journal as an itinerant cakeman served me some years ago. He appeared several Sundays at my church (he was not a parishioner), and each Monday following he was at my door with his cakes. Once they were bought, though not wanted, and were found to be like our regular tradesman's, only—not quite so good. Upon his making afterwards several fruitless calls, he said, "Tell the Rector, as he don't patternise me, I sha'n't no longer patternise be," and he kept his word. But I hope no writer of a contribution need worried to do the same with "our Journal."

"Our Journal." I could speak of much kindness received, this, as in former years, owing to it. Ours is a brotherhood floral and feathered, not masonic, but nevertheless real. "EGGNET" refused to consider "ALICUTS" an "opponent." I liked that, and so also L. Wright's excellent remarks thereon. And now to all I beg to offer my best wishes for the new year. May none of you lose one from your circles this year, but may the last day in December find you all still together, relatives, friends, and neighbours! Yet—yes yet, I would re-echo in a gentle whisper in the ear of each one, "C. C. E.'s" text: "What I say unto you I say unto all—Watch."—WILTSHIRE RECTOR.

### PINE-APPLE CULTURE.

THOUGH not disposed to make a hobby of any particular branch of my business, still Pine culture is one I take rather a special interest in, and practise to a moderate extent; and anything bearing on the subject is, of course, always interesting. This is my apology for venturing to notice Mr. Record's remarks on Pine-Apple culture, page 497; and in comparing notes with him, agreeably to his wish, I hope it will not be inferred that I am ambitious of classing myself among the "great growers," whose experience Mr. Record seeks specially to elicit.

Among other interesting questions raised by Mr. Record is that relating to the size of the fruit obtained from large plants, which, he says, is generally smaller than that produced by less plants. Do I misinterpret Mr. Record in assuming him to mean *old* plants instead of large? If this is what he means, and I think it is from his references to the older systems of Pine culture, his experience agrees with that of most growers. Plants that are grown two years and fruited the third, as used to be the practice, and is still with some, do not, as a rule, produce such fine fruit in any respect as plants half that age; but, according to my experience, the largest pots produce the largest plants, and the largest plants of *one year's growth* invariably produce the largest fruit. I do not advocate very large pots, but let them be as large as the plants are likely to fill with roots, which will depend upon the size of the plant or sucker, and the time allowed to complete its growth. In my opinion the size of the fruit depends almost entirely upon the previous season's growth, and those who grow their plants two years before fruiting, in the expectation of increasing their vigour, are mistaken. We aim at fruiting our plants within eighteen months, and the weight of fruit obtained from each plant (Queens) is from 3 to 5 lbs., 4 lbs. being about the average. Those who would reduce the period to twelve months must begin with large suckers, if fruit of fair weight is expected. If Mr. Record cut fruit off Queen plants twelve months old from crowns, he did a creditable feat.

With Smooth Cayennes the twelve-month system could be practised most conveniently. Suppose you have a lot of vigorous plants ripening their fruit in March and April, at which time the suckers will also be well advanced, these, if taken off and potted at once in 11 and 12-inch pots, will have the best of the season before them to complete their growth, and after a short rest in autumn will show fruit. I have done this in a case of urgency, and occasionally at other times. I had a few Enville suckers presented to me last spring. These I put into fruiting pots at once, and added them to our fruiting collection of Smooth Cayennes. One of them is now swelling off a large fruit, and another Enville, twelve months

old now, is about finishing a fruit that will apparently weigh 4½ lbs. With Queens, however, the time cannot be conveniently compressed into less than eighteen months, unless with large suckers. In an ordinary way, suppose we begin with suckers off the early summer lot in June, these will have fully four months before them to mature their growth; but can we expect such to be at all equal to rooted suckers that have been started in March, or that they will produce fruit of a greater proportionate weight?

In the above remarks I am, of course, supposing that we reduce the short-time plan to a system, and do away with successional stock altogether, which would be the chief advantage gained, as it would give us double the space for fruiting plants. It is by no means an uncommon feat to fruit Pines twelve months from their being potted as suckers; but I think I do not err in saying that hitherto it has generally been more the result of an accident than "guid guidin'." Last autumn I saw an entire house of fine suckers that had shown fruit through receiving a check, and I estimated that the fruit would run from 1½ lb. to 2 lbs. apiece. But what say your readers to fruiting Pines six months after being detached from the parent stock? If suckers, for instance, that should be taken off in June or July, are left upon the old plant till the following spring, they will inherit the maturity of the parent plant, and will, as a general rule, "show" immediately after being potted, and produce finely-swelled fruit, and large according to the size of the suckers and the care that has been bestowed upon them. This, however, is among the "tricks" of Pine culture, and it will be seen that no time is gained upon the whole.

Mr. Record says the Pine will endure a greater amount of rough treatment than some growers give it credit for. I am afraid this principle is acted upon to a greater extent than he imagines, and the consequence is the miserable condition of too many collections that we see. The resistance of the Pine to ill-treatment is more apparent than real, owing chiefly to the character of the foliage; but, depend upon it, if it does not show the effects immediately, it will sooner or later, either in sickly, ragged foliage, inferior-swelled fruit, or general debility. The true Pine-grower admires the sturdy symmetry of a well-grown Pine plant, and broken and disfigured leaves are apt to upset even a complacent temper. I consider it worth while trying to move a batch of plants without breaking a leaf. Indeed, to lessen the chances of injury from any cause when moving large plants from one house to another, I get a lot of empty pots of the size of those in which the plants are growing, and plunge them in rows in the bed as the plants are intended to stand, and smooth everything down. The plants are then lifted without tying up the leaves, brought to the place, and while one man lifts on the empty pot another drops the plant into its place. In this way the plants are transferred from one house to another expeditiously and safely, without the shaking and exposure attending any other plan.

In conclusion, let me say a word about Pine crowns. Mr. Record attributes large crowns to an overgrown condition of the plant. They vary in size according to the variety, but, as a rule, very large crowns indicate ill-swelled fruit, but they are no indication of the age or size of the plant. To swell a Pine Apple equally and well, it must have time, a moderate top and bottom temperature, and abundance of light and air. Reverse these conditions and you will have small, light-weighting fruit, and crowns out of all due proportion; and the same may be said of other fruits also. Undue forcing always results in an excessive development of leaves.—J. SIMPSON, *Wortley*.

### PEAS TESTED BY EXPERIMENT.

I now send a list of Peas to which I gave a trial last summer, with the results. I had the ground trenched 2 feet deep, and well mixed with manure. All the varieties were sown on the same day and on the same ground.

I have found all the varieties worthy of culture, there was not a bad variety among them. Still I have some favourites. Of the tall varieties Veitch's Perfection, Ne Plus Ultra, Prize-taker, and British Queen are my choice. Among the dwarf varieties I consider Little Gem the best. It has several points in its favour; no expense is required for stakes, and by sowing in rows 1 foot 6 inches apart you can obtain as many Peas, or more, than if the same space were sown with tall varieties, and as early. Maclean's Dwarf Prolific, Advancer, and Multum-in-parvo are first-class.

The seeds were all sown on February 22nd, and supplied by

different firms. I found Nelson's Vanguard and Erguise both the same. I intend next summer to make a trial of all the varieties I can bring together, and will then send you my notes, which I think will be of interest.—R. D.

We think so too.—Eds.

#### TRIAL OF PLANTS, EAST COAST, NEAR SUDBURGH, 1869.

N. No.	In Flower.	Height.	Ready.
Harris' Giant	June 16th	3 feet	July 20th
Nelson's Vanguard	May 6th	28 feet	July 11th
Erguise	May 6th	28 feet	July 11th
Advancer	May 14th	28 feet	July 11th
Maclean's Advancer	June 21th	3 feet	July 21th
Maclean's Dwarf Hybrid	June 21th	3 feet	July 13th
Maclean's Little Gem	May 31st	16-18 ft	June 28th
English Queen	June 21th	3 feet	July 11th
France	June 21th	3 feet	July 20th
Maclean's Advancer	June 21th	28 feet	July 20th
Champion of England	June 20th	7 feet	July 16th
Maclean's Dwarf Hybrid	May 4th	28 feet	July 14th
Pickering's First of June	May 31st	28 feet	June 28th
Ne Plus Ultra	June 17th	7 feet	July 12th
Laxton's Profusion	June 16th	5 feet	July 14th
Victor's Perfection	June 17th	3 feet	July 20th
Premier	June 23rd	3 feet	July 21th
Epicurean	June 20th	3 feet	July 12th
Aurora	June 17th	7 feet	July 15th
Prizefighter	June 23rd	5 feet	July 20th

(1) Very good variety.

(2) One of the best.

(3) Good.

(4) Very good.

(5) Very nice variety.

(6) Very good early variety.

(7) One of the best.

(8) Very good-flavoured variety.

(9) Good.

(10) Fine useful variety.

#### POTTED GLADIOLUSES UNDER GLASS.

The popularity of this splendid flower is well proved by the fact of its being so generally grown. Limited indeed is the place where a bed or portion of a bed is not assigned it; and brilliant must be its associates and rivals for pre-eminence, when the Gladiolus only merits marks of second commendation. These are its just claims as a bedding plant; but it is not this, its efficiency for cut-door embellishment, I desire to discuss; I wish to note its usefulness and effectiveness in the conservatory, a place in which it is seldom permitted to figure. No, it is not alone for structures which have been constructed with an eye to the requirements of the plants that I would recommend the Gladiolus, but likewise for conservatories—plant-slaughter houses I consider the more appropriate appellation for them, seeing their construction usually is calculated rather to kill than maintain the health and bloom of plants. The Gladiolus under such circumstances elongates, yet it is hurtful influence is not so telling upon it, as in numerous other plants. While most of these become drawn-up, weak, and sickly, and have flowers feeble and imperfect, the Gladiolus never fails in quality of foliage, flowers, or development. No matter how far situated from the glass, how gloomy the house, or subdued the sunlight, these latter conditions only tend to give additional effect to its blossoms, by producing them even more delicate and beautiful.

Many persons advocate for Gladioluses in pots soil of a somewhat light character, and rather poor in organic matter, but as far as my experience goes, I find they do not at all object to richer fare, and succeed admirably in a mixture such as the following:—Two parts light fresh loam, one part well-decomposed cow manure, and one part equal portions of river sand and leaf mould; mix these roughly together. The pots should be 7 inches in diameter, and be well washed, and plenty of drainage should be supplied by broken pots and broken bones. Cover the materials used for drainage with a few pieces of turf; then, next fill half the pot's rim, completing the potting process by pressing the earth down 2 inches deep in the soil, and filling up the deficiency made after compressing the soil firmly round the root. We have thus perfect drainage secured, and a good receptacle for the roots as well—most desirable objects with plants which do not receive a shift of pots in the course of their growth. Moderately moisten the soil should it be dry to excess; otherwise stow away without watering in a shaded, airy part of the greenhouse, administering only a sprinkling of water if necessary before the foliage appears above the soil, which ought to be the signal to quarter the plants in a more comfortable aspect near the glass.

From this date, with the advantage of additional light, air, and heat, the plants will grow rapidly, which growth should be encouraged in girth, as well as height, by adding a little manure to the water given after the roots have reached the lower limit of the soil, but not until this is the case. Provide each pot with

a well-pointed stake about 2 feet in length, before the stems become top-heavy. This will prevent the mischievous consequences of irregular growth, and the head being partially prostrated from its own weight and other influences.

Thus nurtured throughout the winter months, the first set of bulbs being potted early in January, where early bloom is wanted, in the commencement of April the plants may be plunged near the glass among coal ashes, in cold frames, and their subsequent management is comprehended in supplying water copiously, and giving air on every favourable occasion. A close atmosphere is most prejudicial to the formation of good spikes, and causes the leaves and stems to be lanky. Protect from frost by covering with a mat when the nights are frosty, never allowing a covering unless frost demand it. By the second week of May the plants may be inured to full exposure day and night, at which period the first flower-spikes will begin to exalt their forms above the foliage. In those early spikes we have presented the pioneers of a glorious display of blossom that will charm the senses for the succeeding two months. The plants demand no further labour than a thread of matting to secure the stems as they ascend, and the addition of a pinch of guano to the usual manure waterings from the time the flower-spikes emerge from amongst the leaves.

When a succession is desirable, this may be obtained by potting at the ordinary time (in the first week of March), and plunging the pots overhead in coal ashes in a cold frame or pit, economising sun heat in that month, but by no means to the exclusion of air, and in every other respect treat the second lot as recommended for the first.—A. KERR.

#### GRAPES IN THE OPEN AIR.

We have to thank "UPWARDS AND ONWARDS" for reviving the question of open-air Grape-growing, and the Rev. G. Kemp for the very liberal prizes which he has offered, and intends to offer again; I, too, most heartily agree with your correspondent, "ARCHIMEAD," in wishing for many more Rev. G. Kemps. One such in every village would be a great boon to the cottager. If I may be allowed to offer my humble suggestion to the Rev. G. Kemp, the prizes that he intends offering another season should be open to cottagers and amateurs only. Let the gardener compete in the class where the cottager cannot. I do not wish to be a stumbling-block in the way of the gardener's growing and exhibiting open-air Grapes—far from it; but I think the little there is to be given should be given where the most beneficial results will be attained. The man with means and acres of glass will never look to open-air Grapes for supplying his dessert, or to fill his decanters. Consequently, we must look to the cottager and to men like "UPWARDS AND ONWARDS."

Good Grapes have been and still are grown out of doors, what, then, is wanting to make their production the custom rather than the exception? First, in every village and hamlet some gentleman should take the matter in hand, and plead for the cottager's Vine. As it is, the agents of landed proprietors are destroying it, on the pretence that it injures the walls and plastering. This I protest against, for on the cottage in which I was born there was a beautiful old Sweetwater Vine, never known to fail to produce an abundant crop of large highly-flavoured Grapes. Now, that Vine had stood for many generations; during that time not a day's masonry work had been done to the old walls. Alas! at last new windows and a little plastering, too, were needed, and then the poor old Vine was condemned, charged with being the cause of all. To my sorrow, the last time I paid a visit to my native home, near Exeter, not less than from a dozen to a score Vines had succumbed to the sway of the agent; for their old friend, the village doctor, was gone too—Vines that I had very many times pruned when a very young pruner. The pleading of the cottagers was of no avail. Let us hope that this tyranny is past, and that some kind friend will distribute suitable Vines amongst cottagers, and tell of the propagating, pruning, and soil best suiting them.

Good Grapes can be grown without all the preparation adopted by "UPWARDS AND ONWARDS." Of course, the better the soil the better the Grapes. If the Vines have 2 feet deep of good open soil, a top-dressing now and then, with, if at hand, a cesspool from which the roots may help themselves, and, if not, its contents to be carried to them—all the better. As to the sorts of Grape, the old Sweetwater does well for the purpose, and I have heard that the Royal Muscadine is good. I would not recommend any of the Black varieties, they are so

subject to mildew; besides, somehow, they have not ripened well of late years, although fifteen or twenty years ago I used to see some fine bunches. They may do well under skilful hands now, but not for the cottager, with, I may say, one exception, for I saw at Torquay, some three or four years since, very fair black grapes grown on the limestone rock, and they looked remarkably beautiful. Aspect seems the greatest point to regard in the simple culture of the Vine—a south or south-east exposure is indispensable. It matters not what style of training is followed, the motto should be, Plenty of room, not less than a foot from shoot to shoot, and plenty of young wood; and if fine berries are required, thin them out to one-half their number, not all on one side of the bunch and none on the other, but systematically, by taking out one here and there. If mildew make its appearance, nothing is better than flowers of sulphur and soot blown from a tube over the leaves.

This brings me to the third of my suggestions, and that is to ask all provincial horticultural societies to offer prizes for open-air Grapes, and care should be taken that the offer of prizes be brought under the immediate notice of the cottager, as very likely in some sheltered, out-of-the-way place there will be Grapes in perfection. It would be valuable information if some of your readers in different parts of the kingdom would state their opinions as to the drawbacks in open-air Grape-growing. I have heard of good Grapes being grown in Monmouthshire; I have not seen any here—Carmarthenshire.—J. T., *Maccgwynne, South Wales.*

### FORCING PLANTS.—No. 7.

*IRIS RETICULATA*, a hardly herbaceous perennial, has five flowers of a bright bluish purple blotched with yellow or orange, the stems rising in tufts from 6 to 8 inches high. It is one of the most beautiful of the Iris tribe, and blooms very early out of doors, often amid the snow. It is one of the best plants for forcing, and of a colour much wanted.

Good plants may be grown in 6-inch pots, and fine masses by taking up two or three good plants in autumn and placing them in a pan so as to form a mass. It is not necessary to grow the plants in pots preparatory to forcing, though it is as well to do so, as they are then not liable to any loss of roots, and there is always an advantage in having the plants established, for they are then provided with materials for a good start when placed in heat: whilst those which are potted, unless removed with balls, have to make many roots after the plants are started into growth, and the flowers are sometimes poor in consequence. I, therefore, advise that good plants should be taken up in spring before flowering, and placed in pots of sufficient size, draining the pots well, and using a compost of light turfy loam, and a third of old cow dung or well-rotted manure. The pots should be plunged level with the rim in coal ashes in an open situation, and an abundance of water ought to be given throughout the summer, with occasional sprinklings overhead in dry weather, keeping down weeds, and nipping off any flower-stems. The pots should be lifted occasionally to keep the roots from penetrating the plunging material. In autumn all the plants will require is to have the tops trimmed, and a surfacing of light rich soil.

If plants are not established in pots, the best are taken up from the open ground, and placed in pots sufficiently large to hold the roots and a little soil, but not much, for half the beauty of forced plants consists in having them in pots small as compared to the size of the plants. In November they may be placed in a cold frame, and should be kept rather dry until taken into the forcing house, which they may be in December, and at fortnightly or more distant intervals, up to March, the natural season of bloom. Very gentle forcing only is required: they will bloom well in a light airy position in a house with a night temperature of 40° to begin with, and in three weeks or so increased to 45°, and not exceeding 50°. The plants will produce a succession of flowers for some time. After flowering they may be hardened off, and planted out in the borders.

**PINKS.**—These are not, perhaps, forced so much as they were a few years ago, but they are nevertheless very desirable at an early season, on account of their furnishing sweet-scented flowers for cutting, and are, besides, very decorative. Good plants may be had in November from pipings struck early in June, and afterwards planted out in beds of rich loamy soil, well watered during the summer, and taken up and potted in September, placing them in a frame with a brick under each corner, and having the lights drawn on only during frosty

weather and heavy rains. The best plants only should be selected, and being so young 4-inch pots will be sufficiently large for the majority, but any large plants may have a larger size; 6-inch pots are quite large enough for any extra-sized plants.

To have large plants, the pipings struck in summer must be planted out in beds in September, at from 9 to 12 inches apart every way, the ground being well and deeply dug, and enriched with old cow dung, leaf soil, or well-rotted manure, but this addition of manure should be given at an early period, that by frequent turnings it may become well mixed with the soil. They should be watered in dry weather during the following summer, and the flower-stems must be cut off as they appear. Thus, flowering will be prevented, and growth will be completed early. Early in September the plants should be potted in 6 or 8-inch pots according to their size, draining the pots well, as copious waterings will be required. A compost of turfy loam without admixture is sufficiently rich, but if the loam be heavy, sand should be freely added. After potting, a gentle watering should be given, and the pots set on ashes, and if covered with a frame and lights all the better, as they can then be shielded from heavy rains and frost, at which times only the lights should be drawn on, and even then air should be admitted, particularly when it is necessary to draw on the lights to ward off heavy continuous rains.

In November the forcing may begin. The plants must have a position near the glass, and free admission of air daily in mild weather. The distance from the glass ought not to exceed 18 inches. Water should be given rather sparingly at first, but when the plants are growing freely the watering should be more copious, and at all times the soil should be moist. After the flower-stems appear weak liquid manure may be given at every alternate watering. For the first fortnight the temperature at night may range from 30° to 45°, within the next ten days or a fortnight it may be increased to 50°, and a temperature between 50° and 55°, which latter ought not to be exceeded, will bring them into flower in about six weeks from their introduction into the forcing house. Other plants should be introduced at intervals according to the requirements of the establishment for flowering plants. No plants need be introduced after March. If the winter prove severe the plants in the frame ought to have their pots protected by placing dry hay or litter around them, and a covering of mats or other material over the lights.

After flowering the plants are usually thrown away, and this course I advise; for they are of no further use for forcing, and younger plants are better for out-door planting.

**PAIDINGTON, ALBEMARLE, AND PHEASANT'S EYE**, are among the best of the old varieties for forcing, and Anne B. deyn is good for succession. Lately we have had some excellent additions to the forcing varieties:—Rubens (Turner), of dwarf habit, and very free-blooming; deep pink with a crimson centre. It cannot be too much grown, whether for forcing or in borders, as its blooms are the finest of all for cut flowers. Lord Lyon (Clarke), lilac rose, centre of the flowers and base of the petals marked with rose crimson. The flowers are very fragrant. Napoleon III. (Henderson), crimson scarlet, habit good, free-blooming, and fragrant. Most Welcome (Henderson), white ground, crimson centre, the middle of each petal laced or margined with red. The flowers are very fragrant. It is a perpetual kind like the Tree Carnations. Optima (Wallace), dark purple, a very bold flower, with smooth petals of good substance, and free perpetual blooming, and robust habit. Add to these Anne B. deyn, and we have half a dozen of the best sorts for forcing, Rubens and Lord Lyon being the best for early forcing, and the others keep up a succession.

**CARNATIONS.**—These are but seldom forced, but they may be forced as easily as Pinks, and though it is usual to grow them in pairs for forcing, they should be potted singly. Cloves are the best forcing kinds.

The layers should be potted singly in 4-inch pots in September, and should be set in an open sheltered situation, and covered with a frame, with its corners resting on bricks, so that the plants will have an abundance of air when the lights are shut up to protect them from heavy rains. At all other times, except during frost, the lights should be drawn off. In severe weather mats should be thrown over the glass, and the bricks removed; these need not be replaced until March, but the plants must have air in mild weather, even when rainy, by tilting the lights. Water, but only when the soil is dry, and carefully avoid spotting the foliage by watering overhead, or in consequence of letting it be wetted by rain. In winter water

should be given sparingly at the root. In April shift the plants into 6 or 7-inch pots, and set these on coal ashes in a sheltered situation, protecting the plants from frost and excessive wet by hoops and mats. Water freely in summer, and do not allow any blooms to expand the first year, but cut them close off. Transfer the plants to the blooming pots, using 8-inch or even 9-inch pots for large plants, and continue them out of doors until October; then place them in a cold frame, or, better still, a cool, airy, dry house, from which they can be taken into the forcing house as required, but forcing ought not to begin until the middle of December; the beginning of January is a good time to commence forcing. The temperature from fire heat should not exceed 55° at night; indeed, Carnations should be brought on as gradually as Pinks.

Since the introduction of the varieties known as Tree Carnations, blooms of this class of plants have not been scarce, even in winter. To flower them well in winter, it is necessary to keep them from flowering the first year, but they should be reported as they require it, so as to have them in 8-inch pots by autumn, nipping off the tops of such as are disposed to become straggling, and no flower-stems should be allowed to rise until autumn. The cutting-back or shortening should be practised during the spring and early summer months, the plants being kept well exposed to the light in a cool, airy greenhouse or cold pit. Free ventilation should be given day and night. When the plants have made a good growth, and it has matured, expose them fully to the open air until the end of September, and then house them. In a rather warm greenhouse or conservatory they will flower during the greater part of the winter and spring. A temperature of 45° at night is sufficiently high for plants to bloom continuously through the winter. They may be forced, and in this case the temperature should be from 50° to 55° at night, so as to have them in flower at the required time. The best compost is two thirds loam from rotted turves, one-sixth of old cow dung, and one-sixth leaf soil, with a free admixture of sharp sand. Good drainage is necessary.

If allowed to grow at will, and bloom in summer, the Tree Carnations are the most miserable of all winter-flowering plants, and to see them as they are generally seen, with shoots twisted round stakes, and very much longer than the flower-stalks, is anything but likely to create a taste for their culture; and how seldom are they seen in flower in winter! For winter-flowering they must be specially prepared, and then they are free-flowering.—G. ABBEY.

### BOILERS AND BOILING.

Your readers ought to be much obliged to Mr. Peach for bringing forward this subject; I believe it has not been before discussed in a scientific yet popular manner. So much ignorance is evinced by the public in all connected with heating by hot water, that it is high time the theory of it were better understood.

I entirely differ from Mr. Peach's manner of reasoning; and I believe firmly that water is so bad a conductor of heat that when a fire is applied to it from above little or no effect is produced, because I am sure the principle of conduction fails in such a case, and of course convection cannot take place. A bottle of water placed under a fire grate would be heated on all sides as if it were in an oven, and would afford no means of comparison with one hung in front of the fire. Supposing a box 6 feet high and 1 foot square were placed on end and filled with water, the top being in contact with the bars of a large furnace, would the whole of the water ever boil? No. Supposing the box to be hung over a furnace and the sides effectually screened from heat, would not the whole of the water be boiling in a very short time? Yes. A very thin portion of water may become hot from conduction alone, provided the fire is continued long enough. As the water is circulating in a boiler it does not remain long enough in one place to be heated by conduction; moving water or particles can only be heated by convection. The laws of radiation, conduction, and convection apply as surely to the water contained in a horticultural boiler as to the water in steam or other boilers. I can assure your readers that the most elaborate experiments have proved the truth, that water cannot be heated to any practical amount by fire above it. If a cylindrical boiler were entirely surrounded by fire, it would evaporate very little more water than if the lower half only were used for the heating surface.

The exact quantity of 4-inch pipe which one superficial foot

of boiler exposed to the direct action of the fire will heat is 58 feet; only 1 foot of flue surface is to be reckoned for every 3 feet the boiler actually contains. If a boiler is perfectly set it will do this amount of work, but it is better to count on less being done. Mr. Peach mentions a boiler of his heating 150 feet of pipe. I should like to hear what the total heating surface is, measured on my plan, not counting the top, and only 1 foot for each 3 feet of flue surface. I imagine it is not less than 8 feet.

As to the tubular boilers alluded to, I never remark on contemporaries' inventions. If I made a tubular boiler I should place the tubes as vertically as I could, and shape them like inverted cones.

The feed-pipe should go into the lowest part of the boiler, and the expansion or relief-pipe into the highest point of the apparatus; why, I need not explain.

The rule I gave for calculating the quantity of pipe is not my own, but is by a far cleverer man—Mr. Hood; it gives a large quantity of pipe, and is to be depended upon. Mr. Peach is right in saying the radiating power of glass varies with the angle at which it is fixed.

It cannot possibly take more fuel to keep up the heat in a small pipe than it does in a larger one; it takes less in proportion to the radiating surface exposed. Of course, after the fire is out the smaller pipe will cool sooner than the larger one. The motive power, or working effect or force of water, is alike in pipes of all sizes, because as the motive force increases so does resistance.

It is of great use turning the heated gases over a boiler, because it prevents loss of heat. Soft water should always be used in hot-water apparatus, because it is not so liable to deposit impurities. Generally horticultural boilers gradually become less powerful every year, owing to the increase of sediment or incrustation formed on the inside surfaces. Often the plates are severely burnt from the water being kept away from them through this cause.

Mr. Peach is mistaken in supposing the rules and laws I advocate are exclusively my own; on the contrary, they are acknowledged by all scientific men to be correct.

In deciding on the quantity of pipe required, it is only necessary to put the temperature of the external air at the very lowest point to which it has ever been known to have fallen, then decide on the quantity of pipe by Hood's rule, and it will be found very nearly correct when proved by trial. Mr. Peach says no fixed rule can be correct that is given as above. I am sure we can tell what is the greatest quantity of pipe required to keep a house at a certain temperature when the external air is at its lowest degree of coldness: this is all we require to know on the point, because there should always be sufficient pipe to keep up the temperature required on occasions of unusually cold weather.

As to wind affecting the temperature, if the situation is exposed, it is better to take into account the number of feet of cold air entering by crevices, and add a definite number of feet of pipe to meet the case. Nothing is so unpleasant as to have alterations to make in heating apparatus. This unpleasant necessity is always brought about by working on the guess-work plan, very often called practical.—JOHN WOOLFELD, *Soho, Smeethwick.*

### HEATING BY FLUES.

It is quite enough to an old gardener to hear that the flue has some advocates amongst practical men; it brings to recollection the labour of bygone days, and also the results of that labour; for although we did not hear of so many heavy crops of Grapes with the immense bunches we do at the present day, still there were good Grapes grown in houses heated by flues when proper attention was paid to management and culture; but not having any gardening periodicals to record the triumphs of the gardener's skill and toil, his labours were not known far from his immediate neighbourhood, but always valued by his employers when superior fruit could be brought to the table. I can recollect fifty years ago of seeing Black Hamburg Grapes grown to the weight of 4 lbs., and sometimes they reached the weight of 6 lbs.; also of houses with a 20-feet rafters producing from 30 to 40 lbs. of fruit on each rafter—a sight worth seeing at the present day, and perhaps not much surpassed by our best growers with the hot-water system. The latter I have no desire to undervalue, nor do I wish to say one word against its usefulness when properly applied, but having had practice with both flues and hot

water—flues from first going out as an apprentice to gardening, and hot water since 1827, I may be allowed to give an opinion. My practice always led me to the conclusion that for houses where it is only required to keep greenhouse plants at a temperature of from 35° to 40°, or for detached houses for Peaches, &c., where forcing is only required two or three months in the year, the flue has the advantage both in the first outlay and in the subsequent management. For the last few years my practice has not been very extensive, as I only have at present two small houses 30 feet in length, and 12 feet wide, with a pit 3 feet wide against the front of one house, all heated by a flue after heating a hot-water boiler for my propagating pit. The flue goes along the front of both houses, heating at the same time the 3-foot pit, when it returns, and passes along the west end of the house to the chimney at the back, thus traversing a distance of about 70 feet, and I have found it sufficient to exclude frost for the last three years.—J. P.

## CHEAP RAILWAY TICKETS TO HORTICULTURAL AND OTHER SHOWS.

I wish to suggest, that the Royal Horticultural Society and other associations should try to make arrangements with railway companies to grant a third-class pass at a reasonable sum to the thousands like myself who might have a chance of visiting some of those grand floral displays in which they take so deep an interest. My idea is, that parties wishing to travel to any particular show should first obtain the signature of the station-master, which would be a security to the company against fraud, and then obtain their pass, a boon of which many would avail themselves and thus benefit the company without causing them the least additional expense.—J. WITHERSPOON.

## THE LATE MR. WILLIAM BARNES AS A FLORICULTURAL JUDGE.

THERE are few names amongst my horticultural friends that I should have been less willing to see in the list of our losses than William Barnes of Camberwell. True, my acquaintance with him was not very great, we met only a few times in each year, but these meetings were always pleasant ones. I was never at his nursery, and as of late years he did not exhibit I know nothing of his prowess as a plantsman; but I can well believe that his nursery was carried on in the very best manner, and from all I have ever heard he had few rivals as a plant-grower. Of his private life I know nothing, but of his capacity in the one character in which I did know him I had the very highest opinion—he was to my mind a model judge.

1. He was painstaking to a degree; some judges are satisfied with a mere general look at collections, either of plants or cut flowers. We know that a clever exhibitor can, by putting a plant or two prominently forward, or even placing a few superior blooms in sight, attract the eye, and give an appearance to the exhibit that it does not possess on closer examination. Nothing of this kind ever satisfied him. Every plant was gone through in detail, and if it had been grown one-sided so as to catch the eye it never passed muster with him. So with cut blooms. I have often judged Roses with him, and each bloom was examined separately, as it ought to be always, and not until they had been gone over two or three times was his decision given. Another instance of his painstaking was this: He had sometimes to judge new Roses; when he did so he never came without his list of the two or three years preceding, not trusting to his memory alone, so that no older flower should intrude into the box, and this painstaking preceded all his judging.

2. He was utterly fearless. Like every judge, he was often accused by weak and narrow-minded exhibitors of partiality and ignorance; but neither the discontented exhibitor, the covetous exhibitor, nor the envious exhibitor ever gained much by their complaining to him. A few caustic words pleasantly said generally, in vulgar parlance, “shut them up;” and he held it as a cardinal maxim that a judge had never any right to reconsider his decision, unless in some clear case of omission, as where a box or collection had been put on one side and not been included.

3. He was utterly merciless on all humbug. Woe be to the exhibitor who plugged a Dahlia, added foliage to a Rose, or manipulated a pot plant where he had to judge, as no eye so soon detected it, and no one ever escaped a “disqualified” who attempted any of these things where he was concerned.

I would add to this that he was possessed of a dry and caustic humour, which made him a most pleasant companion. In our little meetings at the Crystal Palace after our judging was over we ever rejoiced to see him among us. His pungent remarks on the many attempts to humbug the public, his long knowledge of men and things connected with horticulture “often kept the table in a roar;” and I feel quite sure that in looking forward to our gatherings there again this season we shall all feel that a blank has been made which will not, nay, cannot, be filled up, for although I know many kind, good, excellent men in the horticultural world, I knew but one William Barnes.—D., Deal.

## THE MISERIES OF A FRUIT-CULTIVATOR.

I AM in great distress. I have done a deed which cannot be undone. Pray hear me patiently.

I am an amateur gardener with a small garden and a small greenhouse. I started fairly, as I thought. I procured my fruit trees from the Chilwell Nurseries—beautiful trees, properly trained. I planted them myself—I did as I was told, I spread out the roots, and nailed the trees up the wall, and I expected fruit; but the trees began to grow very large, and, as I thought, awkwardly; so I cut out the large shoots, as I was given to understand it was the small shoots which bore the fruit. Well, time went on—that is, three or four years, and I still kept down the large shoots, which every year seemed to grow larger; the small shoots would not come. I was greatly perplexed, for my wall room was becoming less, and I saw a prospect of my trees overshadowing my neighbour's garden.

Well, I called in the doctor—i.e., a man who said he was a gardener, had served his time at Stoneleigh Abbey, and could do anything. I thought he was just the man I wanted, so I took him to look at my trees. “Ah!” said he, “your trees have all tap roots.” Tap roots! thought I, what can they be? However, he was not long in showing me, for he at once set about digging up the trees, or nearly so, and we both together commenced sawing off and chopping away the large roots. I confess to have felt some misgivings at the time, for it seemed to me like cutting off a man's legs to improve his walking; but I said nothing. I only thought all the more. Well, after we had cut away nearly all the roots, of course we then cut away a good many of the large branches, as I was informed to correspond with the roots. Dear me! thought I, this looks like walking in a circle, but this gardener knows what he is doing; and so my poor trees, after suffering such awful amputations, were duly nailed to the wall.

And now I was to look for fruit. The spurs would come out first, and then the bloom, and then the fruit. Well, that sounded all right. But lo! to my horror those large branches began to grow again. I saw no spurs, no bloom, no fruit. I thought Nature must have intended me for a timber merchant. This was last summer. I spoke to a friend of mine in my distress, and he actually told me I ought to be hanged, for I had been murdering my trees. I thought of my gardener, and felt disposed to say he was the man. My friend said my trees were spoilt, and that I had better never have touched them; he said also there is no hope of these trees for a long time to come, and then they will be very ugly. He recommended me to try again with some fresh trees, and take Glenny's “Guide” for my adviser, and let common sense have some little influence. I have read a chapter or two in “Every Man His Own Gardener,” and I find I have been too free with the knife, saw, and hatchet. So, Messrs. Editors, I am going to try again.—GREENHORN.

[We sympathise sincerely with you on the untimely fate of your fruit trees, and the pitiful result of your attempts in fruit culture—a result, too, we are sorry to say, not at all solitary—a result, however, which has been brought about entirely by mismanagement and erroneous ideas. Given good healthy trees to commence with, then the cultivator's primary duty is to secure a healthy uniformity of growth throughout the entire tree. This is best effected in summer by pinching and repressing the stronger-growing portions and encouraging the weaker. If, after all, in the succeeding winter some branches be much stronger than others, the pruning policy should be reversed, the strong shoots laid in at full length, and the weaker cut more closely back—all in proportion to their strength. In the following summer the object should be to try and secure as much leaf action on the weaker as on the stronger branches, as before. If, notwithstanding all attempts at repression, the plants still grow too vigorously and continue unfruitful, it is

recommendable to try the effect of root-pruning; shortening the large roots but by no means the top, unless the roots have been very severely dealt with, which should not be. The object of root-pruning is to reduce the means of supply, which it is assumed is greater than the plant requires. If both roots and top are reduced at the same time the balance is not disturbed, and the action is still the same. Wood of moderate growth is generally the most fruitful, and that ought to be the aim of the cultivator. Grass shoots should not be allowed to grow, but be pinched and checked in their young state; but if grass it is the worst practice possible to cut them out or cut them hard back, the common practice—as by these means they only grow stronger and stronger, with less and less chance of fruit every year. It is better, indeed, to leave trees to Nature's way than to prune as our correspondent has done. Trees on walls, however, having a formal, a confined existence, must be pruned to keep them within certain limits, and this had better be effected by skilful pinching of the growing shoots in summer and moderate root-pruning in winter.—Eps.]

### NEW DOUBLE ZONAL PELARGONIUM. VICTOIRE DE LYON.

I AM indebted to M. Jean Sisley, of Lyons, for a copy of the French gardening periodical, "L'Horticulteur Français," for November, and extract from it the following notice of a new double Zonal Pelargonium from the pen of M. Henri Deurier.

"At the last horticultural exhibition at Lyons, the numerous groups of Pelargoniums with double flowers were remarkable, as usual, from the freshness of their blooms. But one above all attracted particularly the attention of amateurs, who could hardly determine whether it was really a Pelargonium that was before them. This Pelargonium possesses a colour so different from that of the varieties obtained up to this time, that I dare affirm, without fear of contradiction, it is not to be found even amongst the single-flowered varieties. The Jury, appreciating so great a result, did not hesitate one moment, and a medal of the first class was the proper reward for the assiduous researches and the perseverance of the fortunate raiser, M. Jean Sisley, an amateur as earnest as successful.

"The double Zonal Pelargonium Victoire de Lyon has a grand appearance. The foliage is of a beautiful green, a little shaded, and very faintly zoned. The flowers are of medium size, very double, and, the most important point of all, of a beautiful colour—pure and lively crimson. As everyone knows, since the first appearance of the really double Pelargoniums, the production of M. Victor Lemoine, of Nancy, in 1855, the colours of these charming flowers have little varied; it is always a lively red or rose. The varieties obtained since have shown a difference of colour scarcely to be recognised, especially by amateurs. Therefore the obtaining of a Pelargonium of a colour so different from the older varieties, and at the same time of a very rich colour, could not but be heartily appreciated by all those interested in horticulture, whoever they might be. This colour, so entirely new, permits us to hope that horticulturists and amateurs, stimulated by this success, will search more ardently and find still fresh shades of colour. And who knows but that the white itself—the white as impossible to get amongst the double-flowered Pelargoniums as the blue Dahlia—the white, I say, may soon make its appearance? M. Jean Sisley has transferred this Pelargonium and two others of the same colour, but somewhat lighter, to M. Alégaire, in whose collection they were exhibited at the last horticultural exhibition in September. He hopes to send them out in the ensuing spring, and I am sure they will be extremely sought after." And so says—D. Dial.

### OBTAINING MOIST HEAT.

A LETTER from Mr. Robson, which lately appeared in your Journal, and some further remarks of your own, on the subject of heating greenhouses by flues of earthen pipes, induce me to bring under your notice a plan which I have recently adopted for generating moist heat, and by which, I think, this object can be attained much more economically than by the usual method of hot-water pipes and tanks.

Into a span-roofed orchard-house viney, 30 feet by 17, I have introduced a flue of common 6-inch draining-pipes. This flue passes from an outside furnace, along the centre of the house, to a point 4 feet distant from the entrance-door at the opposite end. At this point it is received into a box con-

structed of brick-on-edge, 1 foot square by 2 feet in height, covered by a flooring-tile laid in Portland cement. From this box a second line of pipes is returned above the first line and passes into a chimney-flue over the furnace. The pipes rest upon 4½-inch brick partitions, 18 inches in length and 2 feet apart. The joints are made air-tight by common mortar stuffed under the collars. The lower tier of pipes for a distance of 10 feet nearest the furnace I have covered with coarse woollen cloth. This cloth is wetted by the common garden-pot, and by this means, with a moderate fire in the furnace, any reasonable amount of moist air may be obtained. When a sufficient quantity of moisture is diffused over the house the woollen cloth is allowed to dry, and the evaporation is stopped. Means are provided for cleaning the pipes by an opening easily made in the face of the return-box, and by a corresponding opening to the outside from the chimney-flue, directly opposite the upper tier of pipes.

Now, it will occur to many of your readers, as it did to myself, that these pipes are too weak to resist the amount of heat which may occasionally be produced by a strong draught in the furnace. To meet any evil consequences which might arise from this cause, I provided fire-brick to construct a square flue for a space of 4 or 6 feet from the furnace; and I have also provided a 6-inch iron pipe of similar length, with a damper inserted in it, that this remedy may be applied if thought preferable to the other plan. But as the draught in my flue is steady and moderate, the earthen pipes have not hitherto failed, and I am satisfied that with common discretion on the part of the stoker they will stand any degree of heat which can be required to protect plants from frost. If a higher temperature is required for purposes of forcing, it would obviously be expedient to employ stronger pipes constructed of the material recommended by Mr. Robson.—S. M.

"We must approve of all that you say, as we have so frequently urged the importance in all such pipe flues, first of having a flue of brick of 3 or 4 feet from the furnace; and, secondly, having a square brick box at all corners, so that the flue can be easily cleaned without disturbing the pipes. Even in brick flues it would be of great advantage to have places to open without breaking in on the flues. For merely keeping out frost your pipes will do very well. With only one pipe passing through the house it would require to be larger. As you use two pipes, a flow and return, we wish to direct the attention of our readers to your having the hottest pipe lowest. Your covering the lower pipe for the distance you state with coarse woollen cloth is better for securing vapour than the moss, as referred to by a correspondent lately; but in such a house as yours, unless the weather be very dry and cold, you will not have to trouble much about atmospheric moisture.—Eps.]

### COLLECTING AND STORING ICE.

To be without ice is, in most country families, something as bad as to be without Parsley or Onions. On the pond nearest to our ice house the ice during the recent frost was but thin, before the snow covered it all over fully 2 inches deep, and that I well knew would greatly retard the thickening of the ice rapidly. That object, however, was gained. Ice nearly 2 inches thick was soon secured by getting rid of the snow by making holes, and with a long-handled jet sailing the snow with water, so that the frost could act without having to penetrate the protecting snow. Our ice house is of a good size, one of the old-fashioned egg-shaped wells, and I am not so particular as I would be were the house smaller, or if an ice heap were made out of doors. For many years, though the wall is only single instead of double, I have used nothing along with the ice in the shape of straw, salting, &c. It is merely rammed tolerably close together, and in this respect I would be more particular if the place were smaller.

I understand that originally there was a double wall, with an open space between, but the inner wall had been removed before my time, for what reason I never could learn. I would have been sorry to meddle with it, as closely-confined air is one of the best of non-conductors. Though the house has several times on an emergency held out for the greater part of two years, yet in the first summer, by midsummer, and especially by September, there will be a vacant space between the ice and the wall, particularly on the more sunny side of the house, and that vacancy will increase as long as the ice remains. This is, no doubt, entirely owing to the warmth of the surrounding ground heating the walls, and they in their turn melt the ice

nearest to them, and if there were not a free drainage for the moisture all the ice would soon be melted, as nothing does this so effectually and quickly as the vapour of water. Now with a body of 6 inches of confined air between the two walls I do not believe that the ice would melt away so much at the sides, and therefore, if I had an inner wall as well as an outer one, I should not like to remove the inner one.

With this drawback, however, our ice house does its work so well, that, if making a new one, were I much tied by economical reasons, I have a little doubt, if I had the house large enough, whether I would insist on the inner wall; though, if the extra bricks and labour were no object, I should certainly have the double wall with the space between for enclosed air. This is a subject well worthy the attention of correspondents who may have had experience in this direction.

I think that some time ago I stated that I had long ceased to use salt for making the ice more compact and cold, though I am unable to give, even to myself, very satisfactory reasons for thus acting. Here, too, for your scientific readers is a fine opportunity for telling us why salted ice keeps worse than unsalted ice. In other words, how is it that ice close at 32° keeps better than ice much colder? This, of course, would open a still wider question, Does unsalted ice keep better? And I have no more definite answer to give than that I believe the fresh ice keeps better.

I gave up everything like straw-packing at the sides, and straw-covering on the surface, from finding that nothing melted ice sooner than a damp, close atmosphere. There is just one case in which I would use dry straw for a surfacing—that is, when the ice well is used for keeping things in it, and again, when on opening the house a vapour or mist issues from it, that vapour being one of the best of all misters. In such a case I would have small openings to let the vapour escape, and would cover the surface of the ice with dry straw frequently renewed. Besides these general matters in all small houses, the good keeping of the ice will greatly depend on the compactness of the mass, and therefore the more broken and pounded the better, as the more air enclosed with the ice the sooner it will melt. As I have been little troubled with vapour in the ice well, I rarely use straw now for covering the surface. A few years ago I put a layer of earth all over the outside mound to the depth of nearly 1 foot, and the ice has kept better since. If I could do it, I would cover all the mound with a coating of tar, afterwards with gravel rolled or beaten into it, and then rabbits and rats would not be able to burrow in it. As it is, I have no doubt that rabbits make their runs as far as the wall and round it, and therefore allow the heated air of summer to penetrate to within a short distance of the ice, and this would soon be ruinous in a small house.—R. F.

### THE PELARGONIUM AS A WALL PLANT.

WITHOUT entering into the merits of particular varieties of the Pelargonium for covering the back walls of plant houses, the remarks of Mr. Record (see page 379 of last volume) recall to my memory circumstances which occurred many years ago.

Well, then, I may say my earliest recollections of the Pelargonium, then called Geranium, as a plant covering the back and end wall of a greenhouse of some pretensions in its day, date back to the time when the passing of the first reform bill was attracting much attention. I think it was in May, 1831, that a large plant of a Scarlet Pelargonium, called, if my memory be right, the Brighton Hero, some improvement on Waterloo, an older variety, had been allowed to ramble and grow so as almost to force its way through the glass roof, as well as to intrude on other plants. It was, therefore, determined to cut this plant in, and a large basketful of shoots or cuttings, a foot long or more, was taken off, and it was determined to see if they would grow out of doors and do any good. Striking cuttings out of doors, I may observe, had been practised before that time, but in this case it was thought they might, perhaps, become plants and flower the same season; and these expectations were fulfilled, for the season being warm they did grow and flower—not so early, of course, as Pelargoniums, each with a roof, but they did flower in a way that showed that with a little extra start in spring a very good result might be obtained, for they fully occupied the bed they were in by the middle of September. I believe they were planted amongst a number of standards, at that time regarded somewhat as novelties.

But to return to the Pelargonium as a wall plant. Generally it looks badly every year about February, but gradually comes

round again, and its robust character entitles it to more attention as a wall plant than it often receives. It is difficult to enter into the merits of particular kinds, as so many contingencies may operate to give an undue advantage, or the reverse, to some particular plant. I was much impressed with the importance of not too hastily passing judgment on the merits of particular plants from a case that came under my own observation the past summer. Having occasion to plant a number of Pelargoniums in four separate lots, but in proximity to each other, I chose two of the best known and most popular of the Noddy class, and two of other kinds, planting them all at the same time, and in positions in every way alike, the number of each variety not being less than five hundred plants. Nearly all succeeded well, but there were periods during the summer in which anyone asked to choose the best would have selected three out of the four in succession, and at one time the fourth was equal to one which might have been selected. Now, from this it is evident that the brilliant service at a particular time in variety which we may call No. 1, was equalled by that of No. 2 at another time, while No. 3 followed in due course, so that the conclusion the fact directs us to, is not to be too hasty, either in our commendations or the contrary, but to take long services as our criterion of merit, and on this principle no one visiting a garden only once during a season is capable of giving an opinion.—J. ROSSON.

### HORTICULTURE IN VICTORIA.

WE have received the annual report of the Horticultural Society of Victoria, from which it appears that gardening, and especially fruit culture, are prosecuted in that far distant colony with a vigour which we in this country have little knowledge of. From the report before us we learn that the Society, like our own at home, though doing a great and useful work, has its difficulties to contend with. While doing its best to enrich the commercial resources of the colony, and contributing to the improvement of the tastes and pleasures of the community, it has not that support given to it to enable the President and Committee to carry out all they desire to do. The following extract reads very like home experiences. After expressing a great desire to hold monthly meetings, so that the horticultural objects of different seasons might be exhibited, the report proceeds—

“The Society at present has not been able to attain this desirable end for the colony, as the exhibitions are at all times a heavy drain on its funds; the amount paid in prizes seldom being covered by the receipts. Besides, the shows are held at great cost, and involve the Committee in much personal labour and anxiety, and to increase their number would be to require paid superintendence, the duties having hitherto always been honorarily performed.”

It will convey a pretty good idea of the importance attached to horticultural subjects by the Society, when we note the extent of its collection of fruit trees, which the report states is scarcely excelled out of Europe. It embraces—

380 Apples, of which . . . . .	160 have been proved.
261 Pears . . . . .	33 “
83 Peaches . . . . .	18 “
8 Nectarines . . . . .	4 “
80 Cherries . . . . .	39 “
81 Plums . . . . .	43 “
38 Apricots . . . . .	28 “
136 Grapes . . . . .	84 “
34 Oranges (and others of the Citrus family).	
32 Figs, of which . . . . .	6 have been proved.
32 Strawberry, of which . . . . .	26 “

and collections of other less important fruits.

The following extract is one conveying information of the greatest importance equally to us at home as to the colonists, and it furnishes such an example of the wonderful vitality of vegetable life, as may be put to good account:—

“Last year the Committee reported the reception of a case of fruit-tree cuttings from the Royal Horticultural Society's Gardens at Chiswick. These cuttings were grafted last season, and the Committee now report that notwithstanding the severe drought of last summer, a large number of the varieties have succeeded, and of these, scions are this year (1869) available for further stock. The success of this experiment induced the Committee to request a further consignment. The cuttings here alluded to were taken from the trees growing in the Chiswick Gardens in the pruning season of 1867 (October); they were shipped by the ‘Anglesey,’ in December, and arrived

at the Gardens in April, 1868. There being at that season of the year no stocks in a condition for grafting, the cuttings were preserved with but slightly impaired vitality until the following August, when they were grafted.

### WINTER-FLOWERING ORCHIDS.—No. 1.

THE order to which Orchids belong undoubtedly contains the gems of the floral world, and this class of plants, which a few years ago were comparatively unknown, have now become familiar to all lovers of horticulture; the immense quantities which have been imported during the last few years, and the consequent reduction in their prices, having brought them within the reach of most amateurs. Another advantage which has been derived from these great importations is a better acquaintance with the habits and requirements of the plants, which has led to a more genial system of cultivation; and the temperature of a house devoted to the denizens of the mountain regions of Peru and New Grenada is really enjoyable, even by the most delicate constitutions. Under these circumstances it is no wonder that the popularity of Orchids has increased.

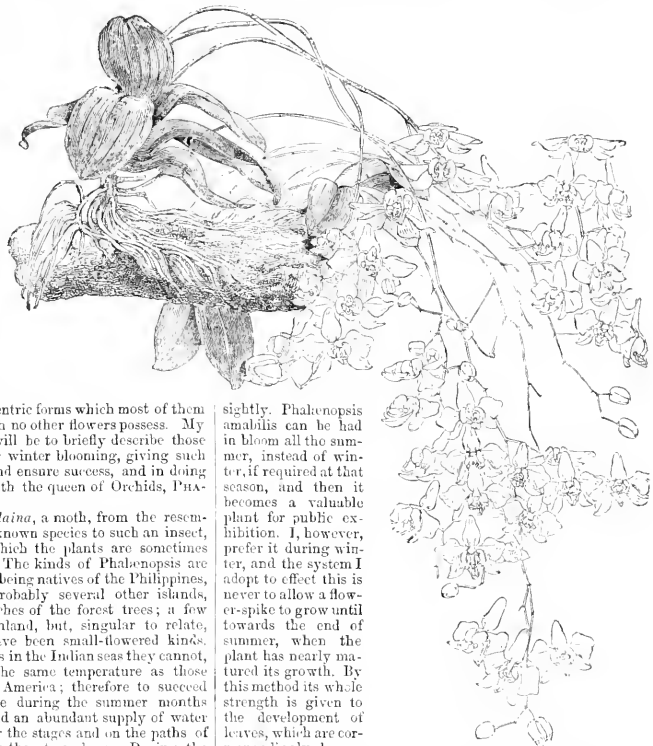
Taking the above facts into consideration, it occurred to me that a few remarks upon those kinds which bloom during the dreary winter months may be acceptable to many of the readers of the Journal who may be only beginning the cultivation of this elegant and most interesting class of plants; and let me earnestly recommend those who have not hitherto attempted the culture of Orchids for winter decoration to commence forthwith. Orchids are now most reasonable in price; they are easily managed, and occupy but little room; whilst the chaste beauty of their flowers, combined with the length of time which they retain their full beauty, and the eccentric forms which most of them display, gives them a charm which no other flowers possess. My purpose, then, in these remarks will be to briefly describe those kinds which are most suitable for winter blooming, giving such cultural directions as I have found ensure success, and in doing so I must certainly commence with the queen of Orchids, *Phalenopsis*.

The name is derived from *phalaena*, a moth, from the resemblance of the flowers of the first known species to such an insect, whence has come the name by which the plants are sometimes called—"Indian Moth Plant." The kinds of *Phalenopsis* are all East Indian plants, the finest being natives of the Philippines, Java, Borneo, Sumatra, and probably several other islands, where they grow upon the branches of the forest trees; a few species are found upon the mainland, but, singular to relate, nearly all those hitherto sent have been small-flowered kinds. As these plants inhabit the islands in the Indian seas they cannot, of course, be grown with us in the same temperature as those from the cool regions of South America; therefore to succeed with the plants the temperature during the summer months should range from 70° to 80°, and an abundant supply of water should be poured upon and under the stages and on the paths of the house, to create humidity in the atmosphere. During the winter far less water must be used, and the temperature should range from about 65° to 70° with fire heat. Opinions vary much respecting the best way of growing these plants. I have succeeded well, and consequently regard it as the best plan, by having them planted in small baskets, and suspended from the roof of the house, allowing some 12 or 18 inches between the glass and the leaves. The materials used for potting should be sweet, growing sphagnum moss and plenty of charcoal. Water should be applied to the roots moderately, but if the atmosphere is well charged with moisture they will not require much from the syringe.

*PHALENOPSIS AMABILIS*.—This beautiful species, of which the accompanying is a representation, produces its lovely flowers at almost all seasons but if properly managed it is especially

"It will thus be seen that a period of more than nine months elapsed from the time they were cut from the trees; nevertheless, 66 Apples, 72 Pears, 24 Figs, 5 Vines, and 8 Plums, have been saved of this consignment."

useful for winter decoration. The flowers are borne upon erect spikes, each spike having from twenty to fifty or more flowers, each flower measuring some 3 inches in diameter. The sepals and petals are pure white and of considerable substance; lip of the same colour, but stained and streaked at the base with rosy pink. The leaves are thick and fleshy, from 6 to 12 inches in length, and oblong in shape, deep bronzy green on the upper side, sometimes stained with purple below. The moth-like flowers of this plant retain their beauties unimpaired for many weeks if water in any form is kept from them, but if they are suffered to get wet they soon become spotted and un-



sightly. *Phalenopsis amabilis* can be had in bloom all the summer, instead of winter, if required at that season, and then it becomes a valuable plant for public exhibition. I, however, prefer it during winter, and the system I adopt to effect this is never to allow a flower-spike to grow until towards the end of summer, when the plant has nearly matured its growth. By this method its whole strength is given to the development of leaves, which are correspondingly larger, and in my opinion the healthy dark green leaves enhance considerably the beauty of its flowers. It is found near Manila.

*PHALENOPSIS GRANDIFLORA*.—Another superb species, the flowers of which resemble the preceding in the purity of their sepals and petals, but the lip is stained with yellow towards the base, and the individual flowers are much larger. When grown for summer flowering it is invaluable for the exhibition table; but I treat it in the same way as *P. amabilis*, and enjoy its chaste beauty much more during January, February, and March than later in the season. In growth this plant differs from the kind previously named in the more acuminate leaves, which are of a bright light green, and its constitution is more robust. It is a native of Java.

*PHALENOPSIS GRANDIFLORA* var. *AUREA*.—This, though some-

what rare, is a grand form of the species, from which it differs in the extra size of its flowers, which are very broad, and in the lip being stained at the base with deep rich orange. It should be treated in the same manner as the kinds already named. Native of Borneo.

**PHALENOPSIS LOWII.**—A somewhat small-flowered but very handsome species: it is a slow-growing plant, which loses its leaves during winter, and has hitherto had an awkward habit of not putting out fresh ones in spring. I have introduced it here as a late-autumn flowerer, at which season its beautiful, bright rose-coloured sepals and petals, and rich violet lip, are a great attraction in an Orchid house. I have not had much experience with this plant, but am very sanguine respecting it. Like its congeners, however, I find it requires an abundance of light. It comes from Moulemin.

**PHALENOPSIS ROSEA.**—This species is much inferior in point of size to either of those already named, and the flowers individually are not very attractive. It is, however, very free-growing, and when it has attained some size it produces a great number of blooms; and as the old flower-spikes live and bloom several years in succession the plant forms during winter a by-no-means despicable object. The sepals and petals are narrow, waxy-white stained with rose, and the small lip is violet, which in some varieties has an additional stain of orange at the base. Native of Luzon, about Manila.

**PHALENOPSIS SCHILLERIANA.**—In this species we have a combination of beautifully variegated foliage and lovely flowers. It

is of a more robust constitution than any other species at present in cultivation, and its natural time of flowering is winter and spring. The leaves are somewhat oblong and blunt at the ends, from 10 to 18 inches in length; the ground colour of the upper surface is deep green, upon which are irregular, interrupted transverse bands or blotches of silvery white, and the under side is dull purple. In some varieties the white blotches are greatly in excess of the ground colour. The flowers are borne on long branching spikes in great profusion, numbering from twenty to eighty or more upon a single spike. The sepals and petals are lilac edged with white, and tinged with rose towards the base. The front lobe of the lip is mauve; the side ones blotched with yellow and more or less suffused with reddish dots. Its lovely flowers retain their full beauty for four months. Native of Manila.

I may add, in bidding farewell to this beautiful genus, that the plants must not be subjected to a severe resting process, for, having no pseudobulbs, they are sure to suffer through it; and I would just remind those who are such severe sticklers for the roasting system for Orchids in winter, that it is very injurious and unwise to persist in such treatment. Granted the plants may be subjected to severe droughts in a state of nature, but in those cases there are no employers to find fault if all the plants do not grow in spring, whilst I wonder how many per cent. there are killed through drought in their native habitats. The loss in young plants and plants growing in exposed situations is, I fear, in some seasons very great.—**EXPERTO CREDE.**

### PITMASTON DUCHESS PEAR.

THE name by which this Pear has hitherto been known is Pitmaston Duchesse d'Angoulême, it having been raised by the

late Mr. Williams, of Pitmaston, from a cross between Duchesse d'Angoulême and Glen Morceau. Bearing no resemblance whatever to Duchesse d'Angoulême, it might with as much reason have been called Pitmaston Glen Morceau, and as it is a mere misapplication of the name to continue it, we are induced to call it simply Pitmaston Duchess, it being sufficiently meritorious to stand on its own merits without borrowing its reputation from any other fruit.

This is one of the largest and handsomest dessert Pears we have. The specimen from which our figure is taken was grown by that skilful cultivator the Rev. William Kingsley, of South Kilvington, whose unwearied labours in the study of all kinds of fruits, and particularly of those adapted and adaptable to the climate in which he resides, will have a most beneficial effect in improving the fruit collections of that district.

The Pitmaston Duchess is a large handsome Pear, generally even, or a little undulating in its outline, and sometimes rather prominently bossed. The skin is smooth and fine, of a pale lemon colour, thickly covered with patches of delicate cinnamon-coloured russet, with a large patch round the stalk. In appearance it is not unlike a good specimen of Marie Louise grown against a wall, when the skin is bright and smooth. Eye large and open, set in a wide cavity. Stalk about an

inch long, stout, and inserted either level with the surface

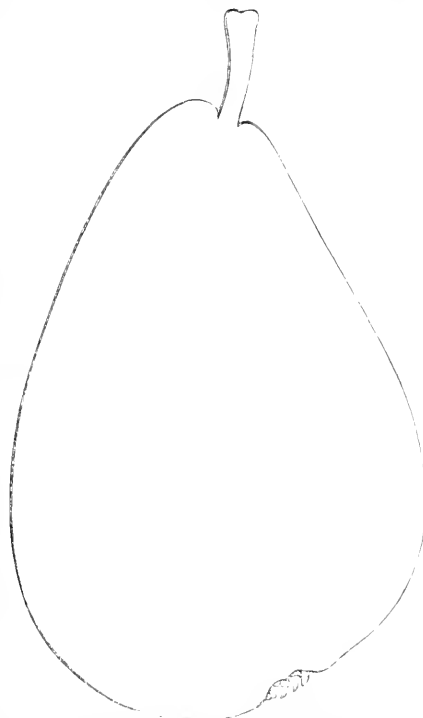
or in a small narrow cavity. Flesh very tender and melting, very juicy, exceedingly rich and sugary, with a brisk refreshing flavour and a delicate perfume.

It ripens in some places about the end of October, but in others it comes into use in the end of November.

As yet the variety has not been extensively distributed. It is little known among fruit-growers, and hence the information regarding it is limited. Mr. Kingsley has grown it only on the Quince, and as yet has fruited but one tree, which is a very small one, in a pot. Nevertheless that tree bore eleven fruit, one of which supplied our figure. Mr. Kingsley says, "The ordinary Duchesse has never come to perfection with me yet."

### NOTES AND GLEANINGS.

MR. EOERTON HUBBARD, JUN., of Leonardslee, Hursley, has authorised us to state, that in addition to the prize of £5 for the best ESSAY ON THE MANAGEMENT OF COTTAGE GARDENS, recently announced in our pages, he will give a prize of £3 for the best ESSAY ON WINDOW GARDENING. These essays are to be sent in to the Secretary of the Royal Horticultural Society on or before Wednesday, 16th of February next. "The object of these essays," Mr. Hubbard says, "should be, by putting together some plain directions in a form that uneducated people can understand, to enable cottagers to make the most of their gardens. And it seems to me that hints as to the best kinds of seeds, or the best paying vegetables and fruit trees, will be the most valuable part of the essay; but the main object will be simplicity of



language and clearness of expression." We hope there will be a good response to the liberal and philanthropic effort that Mr. Hubbard is making to benefit those for whom the good is intended.

At a recent meeting of the Council of the ROYAL BOTANIC SOCIETY, Mr. James De Cade Sowerby, in consequence of advanced age, resigned the office of Secretary, and Mr. William Sowerby, who had filled the post of Assistant Secretary for many years, was appointed to succeed him. Mr. Sowerby was one of the original founders of the Society, and was nominated Secretary in 1839 by the Royal Charter of Incorporation. At the same meeting Mr. Thomas Don was appointed Superintendent of the Society's gardens.

We have to record the death of Mr. WILLIAM BROWN, formerly gardener to Lord Herbert of Lea, at Wilton. When Mr. Brown was compelled by ill-health to retire, his lordship settled on him an annuity of £100. Mr. Brown died on the 23rd ult., at Newton, near Bromley, Kent, in his seventy-first year.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

When the weather permits, all spare ground should now be dug and ridged—indeed, trenched if time allow. Where a systematic rotation of crops is carried out, and of course, a regular planned system of spade management, it is an excellent method to trench all the kitchen garden successively in the course of three years. The trenching to be performed each year should be on the ground intended for tap-rooted plants, such as Carrots and Parsnips; also on that for new plantations of Strawberries, Raspberries, bush fruits, &c. If the subsoil is stiff and sour it should be raised, as in subsoiling, and a good coat of cinder ashes worked in amongst it in a rough state would serve to facilitate the passage of water and air. Sow Early Horn Carrots on sloping banks thoroughly prepared for the purpose, also a few Long-pod Beans to succeed the Mazagans sown in November, and Early Peas to succeed those of the November sowing. Some Early Frame Radishes should now be sown to succeed that now above ground.

### FRAMES AND PITS.

If there is a good heap of hot dung suitably worked, let a seed bed be made forthwith for Cucumbers; a one-light frame is very handy for this purpose. Cover the dung inside with 6 inches of old and clean riddled tan, or, if it can be had, coco-nut refuse, and plunge the seed pots near the glass, taking care, if the bottom heat exceeds 90°, to keep it subdued. Endeavour to have ready a spare frame or pit for early Potatoes; a bottom heat of 70° that will last for a month will be quite sufficient. The sooner it dies away after that the better; bottom heat continued too long will draw up the haulm. If a frame can be spared, sow Horn Carrots and frame Radishes in alternate rows 3 inches apart; a slight bottom heat of 65° will forward them much. Proceed with forcing successional Asparagus. The early beds, if kept well lined, will do again, or they will make excellent beds for Potatoes, early Carrots, or Radishes. Provide successions of Kidney Beans and Strawberries as soon as spare room can be secured for them. Remember that Strawberries are best started in pits or frames with a bottom heat of 70°, with abundance of air, and thence removed to the hot-house shelves if necessary.

### FRUIT GARDEN.

All fruit-tree planting which was not completed in the autumn should be proceeded with in mild intervals. Wherever the subsoil is bad it should be entirely removed, and a platform of brickbats, rubble, or cinder ashes jammed hard at about 1 foot below the ground level. On this pit, if possible, a little rough turf in a fresh state, and be sure to mix some fresh maiden soil with the compost—sow and mix some fresh for the Apple and Pear, sound yet in flow loam for the Peach and Apricot, and free upland soil for the Plum, Cherry, Vine, and Fig. Follow up the nailing and training of fruit trees; lose no time when the weather permits in advancing these matters. When such is completed I would advise strutting with the laundry soapuds, saturating every crevice in the wall. This is an old plan, and a very cheap and good one.

### FLOWER GARDEN.

When there is no frost look over beds planted with bulbs, and, where necessary, stir the surface to keep the soil open and friable. Trap mice, which are often very destructive to bulb-

ous plants. Look to Dahlias and Hollyhocks; the latter, when planted skilfully, produce an excellent effect, and therefore special attention should be paid to having a good supply of them. All Pinks and Pansy beds must be well looked to after frost, and plants which are loosened should be carefully fastened. The same observations will apply to seedling Auriculas, Polyanthus, &c. Those who are beginning to cultivate Kammecluses should obtain a number of the best and of the older and more plentiful varieties—such as Eliza, pale yellow, of beautiful form and petal; Oiseau, white, edged with pink, large and fine; Nazara, though now cultivated for many years, one of most splendid dark silvers grown; Melange des Beautés, good in a scarce class, yellow, striped with red; and Scrotes, olive, of large size and fine form—increasing their stock of new varieties as they attain proficiency in their cultivation. Raising seedlings is now a favourite pursuit with many florists, and a wonderful addition has been made to the various classes of roots, mottles, and edged flowers. For this purpose some semi-double sorts with good shell-formed petals should be planted, in order to obtain pollen at the proper season for cross-fertilisation. Curnations and Pionettes will still require partial attention; a few are spindling this mild winter. It will be better to allow the stems to remain till later in the season; water occasionally when the soil is very dry, but avoid as much as possible wetting the foliage. Proceed, as before observed, with all alterations before the necessary spring work arrives. Take care to have labels of all kinds in readiness. Attend to half-hardy plants and tree Roses of tender habit. Planting may be proceeded with in open weather, likewise turf-laying or other pleasure-ground alterations.

### GREENHOUSE AND CONSERVATORY.

As the conservatory is the chief place of resort by the family in winter, the floors must always be kept particularly clean and dry. Dryness of the atmosphere through fire heat will not, however, keep the plants in that luxuriant health which not only creates a present interest in them, but also furnishes a guarantee for success in future. Great moderation, therefore, in the use of fire heat is necessary in this department, more especially in the dead of winter. A temperature of from 40° to 45° by night, and from 50° to 55° by day, is at this period quite sufficient. Take care that Camellias in blossom are thoroughly watered with clear, tepid, liquid manure water. Keep Pelargoniums in a quiescent state; give as little water as possible; in fact, none unless the plants show a disposition to flag in the leaf. Abundance of air is requisite, avoiding, however, cold currents, which are very liable to speak the leaf when in a tender state through close confinement. A temperature of 50° by day, and of 40° by night, is sufficient for the present. Few, excepting some of the most opulent, possess distinct houses for each family of plants, therefore a few simple directions may be useful. At this period of dormancy, economy in the use of fuel is most desirable in a double point of view. A compromise between the temperature of the conservatory and the Pelargonium house, as detailed above, will be the point to aim at for the present. Keep all Cinerarias, Heliotropes, Calceolarias, and other softwooded plants, in the lightest part of the house and as near the glass as possible. Correas, Epacris, Heaths, &c., should be placed on a bench by themselves in a most airy part. A little water poured on the cooler parts of the floor on each evening will somewhat alleviate the pernicious effects of the fire heat.

### STOVE.

Keep up an abundance of atmospheric moisture so as to counteract the parching or shrivelling effects of hot-water pipes or flues. To obviate the inconvenience of drip leave a little back air all night, if only an inch. A few early Gloxinias and Achimenes may now be introduced to bottom heat in this house.

### FORCING PIT.

This pit should possess at the present time a permanent bottom heat of 80°, and sufficient atmospheric moisture we shall presume has been secured. Such being the case, preparations must be made for producing a due succession of early spring flowers, if not already done. Introduce a sprinkling forthwith of the most popular tribes adapted for forcing, such as the hardy American plants, Moss, Provence, and Spongy Roses; likewise the Crimson Perpetual. The new hybrid Roses will do better in a more moderate temperature, with the exception of Tea Roses, which will endure a lively heat. Azalea indica and many of the plants generally known as winter flowers will also find a place here. As these plants in general

require a moderate top heat in proportion to the bottom heat in the earlier stages of their forcing, they may be kept at one end, and such plants as *Thunbergias*, *Gardenias*, *Franciscas*, &c., that require more atmospheric warmth, at the other end.—W. KEANE.

## DOINGS OF THE LAST WEEK.

### KITCHEN GARDEN.

The weather has been so changeable and unsettled, that little has been done in the open ground. On Tuesday and Wednesday mornings we had the most severe frost of the season, the thermometer against a north wall at 4 feet from the ground standing at 12°, but fortunately for many crops, such as Cabbages, Wheat, and Turnips still in the field, from 2 to 3 inches of snow gave a valuable protection, and remained less or more with us until the last day of the year. The snow was also such a valuable protector, over other covering, to cold pits and frames, that we let them alone for several days, taking care only to shake a little long litter along the sides of a low brick pit. The frost was quite severe enough to go through a thin brick wall, if at all damp, and more than once we have known the plants inside killed, because the wall was never thought about, though the glass was amply protected.

We are rather pleased to see a discussion as to the importance of brick versus wood for absorbing and radiating heat, and we hope it will not be terminated just yet. As to a brick wall absorbing heat from the sun, and then conducting it and radiating off the heat inside of a place large or small, there can be no doubt; but there is just a little doubt that bricks are soon cooled by radiation in a cold clear night, and especially in winter, when the sun has little power. Wood has the advantage, that if it do not become easily heated in summer, it does not easily become cold in winter. At any rate, when placed under precisely the same circumstances, we have known frost penetrate a 4-inch wall, and even a 9-inch wall, when it did not penetrate 2 inches of wood, though in severe frost we would not like to trust either without protection to break the radiating and conducting lines.

As soon as the ground becomes a little drier, we shall prepare for sowing early *Beans* and *Pears*. We have dug a narrow space in front of our orchard house, on the inside, have drawn a wide drill, and given the whole a good soaking, as it was dry, preparatory to sowing a row of *Pears*, which we shall colour with red lead, as in spite of every effort mice and rats are excessively troublesome.

### FRUIT GARDEN.

We must refer to previous weeks' notices, and especially as to watering Strawberries. In wet days we pruned and cleaned, and washed glass and walls in a second viney, removing all plants in order to do this thoroughly, as was lately alluded to. In reference to using hot water for washing, a correspondent tells us that he killed his Peach trees by washing with a hot mixture of water, soap, sulphur, tobacco, nux vomica, &c., and, therefore, he fears the hot water. In the modes of making such mixtures there is often a great difference in their powers. Thus, a mere mixing of ingredients will be very different from boiling them together, as the latter often makes altogether fresh combinations. We have also known bad effects result from using such mixtures too strong and too hot; but we have never known simple hot water do any harm to well-ripened deciduous plants when in a state of rest. Of course, though the water be near the boiling point, it is considerably cooled before it reaches the shoots. We know of no better security or preventive against insects in houses than thus washing, where practicable, all glass, woodwork, and walls with hot water, and even the tops of deciduous fruit trees when in a state of rest.

Planting of all sorts out of doors has been arrested, but pruning may be proceeded with. Had we the command of plenty of hot water we would use it for syringing dwarf trees out of doors. When we have used it for dwarf Cherry trees, &c., we have never been troubled, or very little, with green or black fly during the summer.

### ORNAMENTAL DEPARTMENT.

Planting for cover and permanent woods had to be stopped. Even when the ground was very wet we gave it up, as it is not possible under such circumstances to do full justice to the roots and fibres of trees, and if not planted well there is much against the trees' future well-being. In the case of a lot of *Hyacinths*, *Narcissus*, *Lily of the Valley*, &c., in a slight hole, bed, where, as with the *Hyacinths*, the pots were full of roots,

but the tops moving only a little, the most forward were moved to a warmer place, and empty pots were put over the filled pots to draw up the flower-stems more. When quickness of result is wanted the hole in the pot may be stopped for a few days. A paper funnel is good for the same purpose. It helps to lengthen the flower-stem and give more room for the florets. We have been preparing well-aired soil, and have had it gently heated for potting *Peralargoniums*, cutting-in, &c. In potting now two conditions are great aids to success—first, well-aired, slightly-heated soil; and, secondly, using that soil neither wet nor dry.—R. F.

## METEOROLOGICAL OBSERVATIONS.

In the Suburbs of London for the week ending January 4th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Air.		Earth.			
			Max.	Min.	1 ft.	2 ft.		
Wed. . . . . 29	29.630	29.368	48	21	38	37	W.	.60
Thurs. . . . 30	29.950	29.625	42	37	38	37	S.	.00
Fri. . . . . 31	29.525	29.222	45	39	40	37	S.	.26
Sat. . . . . 1	29.302	29.213	54	41	42	38	S.W.	.02
Sun. . . . . 2	29.558	29.453	49	42	44	40	S.	.04
Mon. . . . . 3	29.625	29.561	56	40	45	41	S.	.02
Tues. . . . . 4	29.778	29.955	51	39	36	42	S.	.13
Mean.	29.681	29.534	49.43	38.86	41.26	38.86	..	0.56

29.—Clear and very frosty; very fine; clear and fine.

30.—Fine; overcast; cold wind; densely overcast.

31.—Slight rain; rain, foggy; heavy rain at night.

1.—Clear and fine; cloudy; showery at night.

2.—Densely overcast; very mild; densely overcast.

3.—Overcast; densely overcast; fine, slightly overcast.

4.—Cloudy but not overcast; slight rain.

## TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

BOORS (*A Subscriber*).—You can have "Plans of Flower Gardens" sent free from our office, if you enclose 5s. 6d. with your address. It is drawings of beds, avenues, borders, &c., with how to plant them and how to cultivate the plants. Rivers' "Rose Anatomy" plan you can have similarly, if you enclose 3s. 6d. The payments may be in postage stamps. (*An Old Subscriber*).—For a young gardener, Thompson's "Gardener's Assistant," "The Cottage Gardener's Dictionary," "Flower-Garden Plans," and Johnson's "Science and Practice of Gardening." They can all be had direct from our office. (E. J. C.).—There has been a second edition, but it is the same as the first.

BINDING OUR JOURNAL. (G. P.).—The advertisements are not included in the indices, and cannot be enclosed in the volume case we prepare.

FIRE. (*Subscriber*).—We do not know of what the fuel which you mention is composed.

CORDON TRAINING.—In a few days, "C. J. M." will reply fully in our columns to the Rev. J. G. In the meantime he wishes stated that he has no experience of espaliers. He does not like them, and in his northern district they are only serviceable for making *Pears*, which can be grown as well. If not better, as low pyramids or bushes on the Paradise stock. Six feet of height is not sufficient for upright training, except for a few very dwarf-growing *Pears*, Apples, Cherries, and Plums—such as *Pears*—*Jarvis*, 3 feet; *Beurre*—*Gouault*, 4 feet; *Beurre*—*Gifford*, 3 feet; *Beurre*—*Laure*, 3 feet; *De Zuylen*—*Cremona*, 3 feet; *St. Rik*—*Thorn*, 3 feet; *Bon Christ*—*3 feet*, &c., on the Quince. *Cherry*—*May Duke*, perhaps 4 feet; and *Jaffrey's Duke*, 3 feet, on the Mahaleb. There are several sorts of dwarf barking Apples—such as *Lord Sutherland*, 4 feet; *Hawthorn*, 4 feet; and 4 feet; *Ketty*—*Gosson*, 4 feet; *St. Rik*—*Thorn*, 4 feet; *Cedric*, 4 feet; *Warner*—*King*, 4 feet; &c. *D-sert* Apples—*Irish Peach*, 4 feet; *Samner*—*Golden Pippin*, 4 feet; *Golden Pippin*, 4 feet; *Cox's Orange Pippin*, 6 feet, &c., all on the Paradise. *Plums*—*Bolton*—*Purple*, 6 feet; *Rivers*—*6 feet*, 6 feet, and *primitives*—*De Montfort*, 6 feet and *Victorin*, 8 feet, if carefully not-pruned. Three feet for high walls will be on to enough space to allot for *Pears*, and *Cherries* of the *May Duke* race; for *Governor Wood*, &c., 4 feet; for Apples, 4 feet; for Plums, 6 feet; for *Peaches*, 4 feet. *Plums* should be trained two years like *Seymour's fan*, and then turned up-axis to 8 feet quite sufficient. *Peaches*, 4 feet; Apples the same as Plums; *Pears* and Apples with five upright shoots. Accidents excepted, all will have a long life and a merry one. Train upright all fruits.

THE GRAPES AT GLIMS.—A correspondent asks what is meant at page 479 of our last volume by turning and exposing the bunches of the Muscat. We regret our remarks should not have been clearly understood, yet scarcely know how otherwise to express ourselves. The reason for the operation is that the berry of the Muscat ripens better, and assumes that beautiful and so desirable amber tint, more effectually, by being exposed to the direct action of the sun's rays. One side of a bunch is always naturally more exposed than the other, and colours accordingly; a leaf may, however, intervene, which should be removed. All that Mr. Johnston does, then, is by twisting and turning the shoot round, in the one way and then the other, to expose every berry to the same solar influence, and secure the same amount of coloring in every part.

VINES IN POTS—SHIFTING. (E. A. C. Nott).—1. In this case we decidedly agree with the gardener, and object to repotting if you wish for fruit this season. You might use a pot instead of a pan to set the pot in, but most

will depend on the top-dressing. 2. We presume that your pipes sufficiently heat your slate-bottom of the bed now; if so, the simplest plan would be to make the bed waterproof, with such a water-proof ledge at the sides of at least 1 inch high, or at any rate with openings at that height, to let the water out. Then 2 or 3 inches of clean rubble, pebbles, &c., would be enough, covered with an inch of small washed gravel to make a bed for the soil. With upright drain-tiles through the bed you can always keep the slates moist; and if you want vapour you have only to nailing the upper slates and are carrying all along, however, that you have plenty of heat to your bottom slates.

**VINES IN POTS** (*Triumph*).—You had better thus cultivate the Black Hamburgh. Pots not less than 12 inches wide at top, nor more than 15 inches are required. "The Vine Manual" will give you full information; you can have it sent from our office if you enclose thirty-two postage stamps with your address.

**PRESERVING ROTON ICE** (*E. R. P.*).—The following is successfully practised by Mr. Shearer. A smaller-sized pit might be made. Make a long hole 25 feet in diameter and 5 feet deep, with a drain to take away the water, and 3 feet of stone put in the bottom for drainage; then fill with ice. The hole hold 170 or 180 cartons. Two carts are at a time, and fourteen or fifteen men fill the hole in a day. The carts, when the ice comes up to the level of the ground, are driven over the top of it, and eight or ten men are kept breaking it with wooden mallets. When the ice is so high that the horse could get up, it is thrown up with shovels as high as it can be raised, and then covered over with straw, laid on about 2 feet thick in bunches, and made a little smooth; a few straw ropes are thrown over this, and these ropes are tied in a piece of stick at each side to prevent the wind from blowing away the straw. The stack should be situated from the sun.

**STRAWBERRIES BEARING IN DECEMBER** (*C. Collins*).—It is not unusual for some kinds of Strawberries to flower, and if kept in a greenhouse or frame to ripen the fruit late in autumn or to winter. Black Prince frequently shows fruit in the autumn, the plants are full of being nearly runners of the current year, and if the weather be favourable the fruit ripens, though glass is in most cases necessary to insure its ripening. We have known runners which exhibited this tendency hyvered in 6-inch pots, well supplied with water, and not detached from the parent plant, beginning of October; then the pots were placed in a cold frame and removed to the greenhouse as the weather became colder. Such plants we have seen fruiting well in December. May Queen is another variety that has a disposition for autumn fruiting. The trouble required is hardly compensated by the results.

**REMOVING AUTUMN-FRUITING RASPBERRY CANES** (*E. R. P.*).—Our former reply was based on summer-fruiting kinds—such as Antwerp, Fastolf, &c. The new kinds of autumnal Raspberries require different treatment. They do not usually bear fruit in the year's canes, or if they do, it is but small. It is good practice, as advised by Mr. Rivers, to cut down all the canes close to the ground in February, and in May pull up all but three or four of the strongest, leaving them about 1 foot apart. Except in the south, and warm sheltered situations in the midland and northern counties, they do not always ripen their fruit well in autumn.

**COLISEES DAMPING-OFF** (*P. F. H.*).—We think the Colisees have gone off from the dampness of the pit or frame, though they would suffer equally in the cold of the greenhouse. A temperature of 4° is too low for wintering them safely, and the well-cared plants should be started in September, and the plants, when rooted, potted singly in 3-inch pots. Give them an airy position well exposed to the light, in a house with a temperature of from 50° to 55° at night. Keep them near the glass and give a moderate amount of air. When the pots are full, transfer the plants to larger pots, and afterwards shift into 6-inch pots, which being done in November or early in December, you will have fine plants for winter decoration. The plants being thus kept coolly growing all the winter, should be encouraged in price by well-cared plants into larger pots, stopping them, and maintaining a moist atmosphere; you will thus have splendid plants in June, and by striking the stoppings you may have a good stock of young plants. During winter they should not have more water than is necessary to keep the leaves from flagging. If you have no other place than a greenhouse to winter them in, the plants should be well-established in pots by October, and removed to the greenhouse before frost and dull damp weather set in. The soil used for potting should be light and sandy, and the drainage must be given. They should have the driest and warmest position the structure affords. Do not let them interfere with the growing pots, but let them grow at will. In spring you may cut in the plants to the shape required, and make cuttings of the plantings.

**SELECT CHRYSANTHEMUMS** (*W. H. B.*).—For three kinds, barely free-blooming, fine for specimens, and coming into bloom early, we recommend of the colours you name, Princess of Teck, white; Fiegl, red; violet; or Prince of Wales, purple violet; and Golden Beverly, yellow. Of Pompons, White Trevena, white; Capella, reddish chestnut; and Prince Victor, red maroon. Siller or the Chrysanthemum, published by Goodbridge & Sons. Mr. Broome, of the Tower Temple, London, has also a useful little handbook.

**CARDS OF EXHIBITORS AT HORTICULTURAL SHOWS** (*W. H. M.*).—At the Royal Horticultural Society's exhibitions each card on which an exhibitor's name was written is turned face to the wall, and the judges, if fruit exhibited, and only a number written on the back of the plants making their awards refer only to the numbers, and ought not to know the exhibitors' names until afterwards.

**SNOWBERRY** (*Thrs*).—It was a mistake in "A. C." when he recommended "Halesia," he meant the Symphoricarpos. The Halesia is the Snowdrop Tree.

**JEE D'ESPRIE** (*W. Adley*).—Your notes on the gardener have been published too many times to need a reappearance.

**ORCHARD HOUSES AT CHILWELL** (*Newman*).—Why not go there and consult Mr. Pearson? The form of the roof, &c., and cultural directions are in Mr. Pearson's "Construction and Management of Orchard Houses." You can have it post free from our office if you enclose twenty-two postage stamps with your address.

**ROSE FOR E.N.E. ASPECT** (*Berkhamstead Subscriber*).—Climbing Devonian or China Forester. Mrs. Pollock or some other variegated Pelargonium would look well along with the blue Lobelia.

**NAMES OF PLANTS** (*G. H.*).—We have no remembrance of your yellow Daisy-like flower. (*P. E. S.*).—The tree you refer to is *Aranea imbricata*, or Monkey Puzzle. (*W. Webster*).—Your Orchid clearly is *Episcidium clivale*. It is quite exceptional to find only a single flower emerging from the spathe, giving it an appearance different from its usual character. (*Brill, Bucks.*) 1. *Jasminum Sambac*; 3. the narrow-leaved New Zealand Flax, *Phormium Cookianum*, long known as *P. Colensoi*; 4. *Stachys lanata*. No. 2 puzzled us considerably; it appears to be some species of *Cestrum*, but we decline to guess what. Can you not send us a second and better specimen?

## POULTRY, BEE, AND PIGEON CHRONICLE.

### ANNALS OF POULTRY IN 1869.

We know no feeling for which we are more grateful than for the elasticity of the human mind, and the facility with which it accommodates itself to circumstances. The king can do nothing that the king has not done, and there is nothing new under the sun; still, even in an old, or at least an accustomed task, there lacks not something of freshness. It is not in the human mind to be satisfied. With some there is continual craving; with others, having everything else, they want the Roc's egg, but with all there is the desire to attain something, or to get rid of something; and although these feelings may be of many years' duration, and there is an inward conviction the object will never be attained or accomplished, yet that is stified in order to allow the mind to dwell on the coming time as that which is to surpass its predecessors, and to crown the edifice. This is more especially true of the new year; even those who can count their Christmases by threescore, and who during forty of these have looked for great things to come, and looked in vain, are still listening to the fond promise that all their wishes will be fulfilled, and their desires accomplished in the new year. The worst we wish them is that it may be so. It is always painful to talk of self, and we have deferred it as long as we could, but it is a duty we owe, and we desire to discharge it in full. We are not more free than others from the weaknesses incidental to our nature, and we have a lively recollection of wishes and anticipations that did not, perhaps, meet with immediate fulfilment, but they were fulfilled, and we are grateful for it. We should derive from our usual course did we not say our first and chief feeling is gratitude that we have been spared with so many of our friends and good supporters. It is by their kindness, in great part, that we have possession, instead of being perforce content with anticipation. While we heartily thank them for it, we promise to them and to ourselves a continuance of the efforts that have met their approval. We shall, therefore, look in 1870 for the support we have received in 1869.

The review of the classes need not be a long one. The experience of nearly a quarter of a century has not been thrown away, and we verge on perfection; still, so much has been done, that it is hard to fix a limit. We know that German breeders will produce any Pigeon that can be put on paper, however difficult the plumage may be, and, judging from what has been done, we should be almost disposed to think poultry-breeders can do the same.

How great a change may be seen in Dorkings by those who can look back twenty years! Formerly the cock weighed 9 lbs. was a marvel; the average of hens 7 lbs. each. Now cocks weigh over 12 lbs., and hens from 9 to 10 lbs. each. If this increase of weight were purchased by the loss even of appearance or symmetry, there might be found some to regret it; but the birds are not only heavier, they are handsomer and harder. They have more than held their own throughout the year in every way. The White Dorkings are now as heavy as the Coloured were formerly.

Cochin-Chinas keep on the "even tenor of their way"—good, quiet, stay-at-home fowls; when they were unduly valued they tried to reach the value put upon them, and when they were abused they went on a "never minding" till they lived their detractors down. The Buff and White have been excellent, the Grouse and Partridge hardly so good as usual. Cochin entries have been numerous everywhere.

We are told there are still people who call the Brahma Pootras "Shanghaes," and deny them the rights and standing of a "distinct breed." We can imagine such people calling for a chair, and, addressing the chairman as "sirrah," desire him to carry them to Ranelagh, Vauxhall, or it may be the Marybone Gardens. Industriously people the manufacturers of Brahmas! They showed at Birmingham 233 pens—large beautiful birds of most undeniable purity. These have formed









with the blue or chequer match, certain it is that in the show pen all birds not really black should be rigorously disqualified. The prizes everywhere are offered to Blacks. On what principle, then, are Blacks sometimes excluded in favour of slaty-coloured usurpers, however superior? Let such specimens be relegated to the "Any other colour" class, when their owners will quickly discover the means of breeding to standard. Our suggestions may seem rigid, and too persistent on the side of colour; but while we yield to none in our intense admiration of the structural properties, we recognise that the colour may be improved without any sacrifice of limb, crop, contour, or length. It is quality, not quantity, that we advocate, and the Black strains, if not numerous, can yield a sufficiency of full-sized tail-limbed birds, and are diversified enough to maintain strength without resort to matches which can but impair the pedigrees, and set up a tendency to perpetual and unwelcome reversion. Judicious mating for the highest standard only will do more to establish this department than any attempt to eke out its inferior numbers by deteriorating crosses, and of this we believe our Scotch friends are fully sensible.

Having reached our present limits, the discussion of the remaining Pouter classes must be deferred until our next.

(To be continued.)

### SKY TUMBLERS.

"OLD BOB RIDLEY"—a Lancashire "chap," sure as e'er "Tim Bobbin" was, and a native, I dare swear, of some village not a dozen miles from "Rachda" (Rochdale), in our county. But I should like to know where "Old Bob" puts up "o' market days," that I could have a "camp" with him o'er a warm pint, on Sky Tumblers, and terriers, fountar, and rat, and trail huns, &c., all in his way, if my guess is right. Canaries, Bullfinches, Game chickens, too, as well as gooseberry, and rhubarb, and flower shows, and "a bit o' moorgame sport"—Grouse—I dare say he understands; for your true-bred Lancashire lad knows all about such things innately and instinctively, and is none the worse for his love of animals, birds, fruits, and flowers, and an occasional "warm pint," despite the lamentations of such orators as live on hot cakes and tea, and talk twaddle for their living. Nor is he a whit worse for his love of sport. His heart is in the right place, and capable of as much fervour and truth in all that is good and godly (a time for everything), as in his holiday fancies and pursuits. No cant, no nonsense in him, but bump upright, and manly "afore his betters," if any such exist, and equals alike. So much for "OLD BOB RIDLEY," whose name may alarm, perhaps, some of your more sentimental readers.

And now for Sky Tumblers, "Old Bob's" sort. He has a few such birds, and describes them perfectly; though he lacks the self-coloured birds amongst his Mottles and Solashes. Years ago I had all colours, mixed and self, and only lost the lot by a Pigeon-loft burglary. The fame of my birds had invited a clean swoop—for depredation, doubtless, since "neither top nor tail" did I hear of my flight afterwards. "Old Bob's" birds do not equal those told of, that go up so high they cannot come down by daylight, but have to perch in the clouds, and come down by moonlight, or wait until next morning, before descent again! However, three-quarters to one hour is the best of flying, and quite within the truth; and trained to a watchman's rattle, flights of twice that time are to be attained, and the birds whistled quietly down at pleasure; but half an hour of good soaring, and circling, and tumbling is as much as one cares or likes to watch, and is enough.

The Maclesfield Tumbler, I am told, is a blue bird; but I cannot get any (gone out with the silkweavers ruined by French treaty); and Manchester and Chester make no sign of having the Sky Tumbler fancy in them. All Short-faced Tumblers to look at only—like too many things now-a-days! The Maclesfield Tumblers were famous; so are, or were, the White Eyes—Yorkshire Tumblers—all Sky Tumblers, and now scarcely to be found reliable for blood. Cannot you, our Editors, bring out Sky Tumblers in our exhibitions? They are the best birds for homely innocent fancy in the Pigeon family.

A word or two for what is called "The Birmingham Koller." I have a flight of twelve that will soar and fly half an hour or more, and tumble, too, nicely, and crack their wings like whips as they wheel about—a sign of strength of flight; in fact, equal their cousins, Sky Tumblers, in all but velocity, being, I think, a trifle heavier on the wing. I believe the Koller (why so called except for tumbling?), certainly Sky Rollers, to be a cross-breed betwixt the Sky Tumbler and the Derlin, Dutch, or German Tumbler, to gain strength, and the muffed leg, admired by some fanciers. The colours are various, with a tendency to throw birds with white flights and beards, termed "broken

baldpate" by "Old Bob," and almost, though not always, with muffed legs. In short, the Koller is a hardy, prolific, and well-flown bird, to be bred in any colour you please, except baldpate perhaps. Crossed again with our Sky Tumbler, the Maclesfield, or White Eye, I feel sure, barring downy legs, it would rival the best pure Sky Tumbler in every point of form and performance.

I wish "Old Bob" a merry Christmas, and a happy New Year.—READER.

I RESPOND to "OLD BOB RIDLEY'S" wish for the desired information, and inform him that Mr. W. Crook, tobacco manufacturer, High Street, Swansea, South Wales, has what he terms the common Mottled Tumbler, and he is open to show any gentleman the height and the length of time they keep up. I myself will vouch for their flying from two to four hours any or every day during the winter months, and in summer time they will regularly fly four and five hours without dropping, and when at their flying height you can only just see them, and you could place a sieve over them, the flock being thirteen.

I have frequently seen Mr. Crook destroy his young birds if they did not fly two hours when at the age of four months old. His principal coloured birds are black, black and mottled heads, red mottled and white, with clean legs, broad chest, short face (or short beak), silver eyes, and are strong well-built little birds. I have certainly heard of these pretty little creatures doing only, as "OLD BOB RIDLEY" states, three-quarters of an hour; or one hour is thought good work. Mr. Crook calls such birds roadscrapers or chimney-pot destroyers. I have been keeping these little creatures for upwards of twenty years, but I never have come across such birds as the above gentleman keeps.

—AN EYE WITNESS.

### MISMANAGEMENT AFTER AN ACCIDENT.

I HAD a Stewarton hive with a strong stock of bees left in my care in September, and it had the misfortune to be upset in November, the bees and the combs sent to the ground out of the body box, and the combs in the super detached from the top. I replaced the hive and took the super off, picked up the combs which were covered with bees, shook them off into the super, and replaced it. I then tied the combs with thin string firmly into the frames of a hive something after the Woodbury style, feeling satisfied that the queen was with them as they had had every chance to leave the hive in search of her, it being upset about two hours before I reached home. With the aid of a little tobacco smoke I got the bees into the frame hive, tied the remainder of the combs which were in the super into frames, placed them in the hive, and having shut the bees in, took them into the greenhouse which was kept just warm. Next morning I opened the entrance to see if they would take to their new home. During the afternoon the fire had to be raked out, and the greenhouse was allowed to go so cold as to chill them, when it was no little trouble to pick them off the windows, plants, &c. I warmed them in a bell-glass and returned them to the hive, fastened them up, and took them to their old stance. A few days afterwards, being a mild day, I let a few out; some flew off, two or three flew about a short time, and then alighted on the hive, but they remained outside until numbed with cold. I wrote to the person to whom they belonged, requesting him to bring a weak stock and unite them; but preferring to know if the queen was all right, he brought a shilling's worth of chloroform, and with a little cotton wool put it into the hive at the entrance to stupefy the bees; he found the queen all right, but the chloroform not only stupefied the bees, but killed them outright. A few days afterwards I discovered them as we had left them on the bottom board of the hive, but on examining the frames I found that the bees had fastened the combs. Can you say why the bees would not return into the hive when in the greenhouse, and when placed on their original stand?—J. B., *Minton*.

[The final catastrophe was but the natural result of the mistaken course which was pursued. The only chance for the poor bees after you had temporarily secured their combs and induced them into their new domicile, was to leave them at perfect liberty on their old and well-acustomed stance, where, if favoured by mild weather, they might have licked up the spilt honey, refixed their combs, and, perhaps, ultimately have prospered in spite of their misfortune. When, however, bees are confined under such circumstances they must perform all



## WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 13—19, 1870.	Average Temperature near London.			Rain in last 45 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	h.	
13	Th	Cambridge Lent Term begins. Oxford Lent Term begins.	43.0	29.3	35.3	19	3	af 8	15	af 4	1	40	af 3	11	11	9	0	13
14	F		42.1	29.9	35.0	19	2	8	17	4	47	1	47	4	12	9	42	14
15	S	2 SUNDAY AFTER EPIPHANY.	41.7	28.9	35.3	13	1	8	19	4	39	2	53	5	13	9	43	15
16	SUN		42.0	31.0	36.5	20	0	8	20	4	23	3	52	6	11	10	4	16
17	M	Royal Horticultural Society, Fruit, Floral, (and General Meeting).	42.6	28.7	35.6	15	59	7	23	4	25	4	47	7	9	10	24	17
18	Tu		43.6	31.1	36.9	18	58	7	23	4	37	5	31	8	10	10	43	18
19	W		43.1	30.6	36.9	20	57	7	24	4	55	6	9	9	17	11	1	19

From observations taken near London during the last forty-three years, the average day temperature of the week is 42.4; and its night temperature 29.7. The greatest heat was 68°, on the 13th, 1828; and the lowest cold 41° below zero, on the 19th, 1838. The greatest fall of rain was 0.88 inch.

## FRUIT-GROWING IN FRANCE AND ENGLAND.

No. 3.

## PEACH CULTURE.

**I**T was a hot sultry day when my excellent guide, M. Viret, and I started off by train for the purpose of visiting the far-famed Peach grounds of Montreuil, notably that of M. Lepere. When we left the station the walk was hot, dusty—the dust of that everlasting gypsum which abounds all round the basin of Paris, and with the exception of the day I passed among the Asparagus cultures of Argenteuil, I had not had for many a day so broiling a walk as this. When we arrived at our destination M. Lepere was not at home, but we were courteously received by his foreman, examined the whole of his method of culture, and saw the results, and I was enabled to come to my own conclusions on the matter. Let me, however, say a word about this whole neighbourhood, the very home of Peach culture round Paris. Nothing can be more curious than the aspect of the whole place: viewed from any eminence it seems to be nothing but a congeries of white walls. The gardens are very small, each surrounded by high walls, glisteningly white with whitewash that a churchwarden of the olden time might envy: while the larger gardens, such as those of M. Lepere, are broken up into oblongs by walls running across them, and all these are covered with Peach trees of every form and size. It is evident, then, where the Peach is cultivated as such a *specialité*, that greater pains can be bestowed than where it forms only a portion of the many cares that an English gardener has to contend with. No market gardener with us would consider it worth his while to cultivate Peaches to this extent; the crop would be too precarious, and the price, owing to most of the wealthy folks being out of town when the Peaches are ripe, would be unremunerative. Wall Peaches cannot be grown near London, as a *specialité*, with profit—for this reason: the valley of the Thames suits the trees well as far as growth is concerned, but the climate is not bright enough in many seasons to ripen the wood thoroughly, so that the crops often fail; and when they do not, as I have already said, they will not pay their expenses.

I do not think it necessary to enter into any lengthened description of some of the remarkably curious specimens of training to be seen here, the Lepere, Eugénie, and Napoleon pieces are well known, but they are after all playthings, and no way touch the subject on which I am writing. We have not the time, and I hardly think the inclination, to attend to such matters; they unquestionably show what the Peach will endure in the way of training, but more than this I cannot see that they do. I have before me the "Traité du Pêcher," by M. Lepere, probably the most elaborate book on the cultivation and training of one species of fruit tree ever published, and if anyone wishes to master the system adopted at Montreuil he had better consult this work. There are a few points which may be worth mentioning—first, the protection given to the

trees in spring. Various notions have been broached on this subject, and I must perforce subscribe to the maxim of my friend Mr. Radclyffe, that to attempt to grow wall fruit in this country without protection is worse than useless. But what protection? By some it has been advocated that heavily-coped walls would answer; to this I unhesitatingly demur. Very heavily-coped walls—that is, mud walls well thatched, are in extensive use in parts of Dorset, but I never saw a healthy fruit tree on them, and this is what I should expect: the heavy coping shades a large portion of the walls, and renders the tree so far unproductive. The French walls are coped, not so heavily as the Dorset ones: but, then, the greater light and heat of the Parisian summer to some extent obviate the mischief. Were the copings heavier there, I believe the trees would not be so healthy. The Montreuil growers do not, however, trust to copings; they are exposed to the spring frosts equally as we are, and their protection consists of the *paillassons*, quantities of which are made in the winter months; it is simply a tolerably thick layer of straw laid between pieces of wood, and tied together, being about 18 inches wide. Iron bars are driven into the wall under the coping, and these *paillassons* placed on them; they are put on early in spring, and removed when the fruit is set. I do not think these, though very economical would answer as well as those certain protectors of Mr. Radclyffe: it is not the severe frost which is dreaded, but the moist hoar frost, on which the sun afterwards shines. Equally if not more trying is heavy rain succeeded by frost; the blossoms are then full of water, the frost congeals the drops, and all the organs are blackened and destroyed. My grandfather, who had a large experience in the staple fruit of this county (Cherries), used to say that he never cared how hard the frost was, provided there was no rain beforehand; that dry frost never injured the Cherry crop. Curtains run on rings, as Mr. Radclyffe has explained his, or fastened to long poles, which are leant against the wall, and placed on whenever there is a sign of frost or wet, are far better protectors than the *paillassons*. Of course they are more expensive, and perhaps involve more trouble: but then I hold if a man possesses a wall he will not care for the little extra money or trouble they entail. Here, then, I think we have nothing to learn from our neighbours.

With regard to training, all that at Lepere's is done on the spur system, tending to promote the greatest quantity of fruit buds, the ordinary system with us being in opposition to this, the "laying-in" of shoots. There are two questions to be considered in reference to the comparative merits of the two systems—first, as to appearance, and second, as to profit. With regard to the first, there can be no question that there is an air of extreme neatness in a wall trained on the spur system, especially where the trees are trained in the shape of a U, with two leading shoots, and so it is with a wall where the shoots are laid in, and kept carefully trained; so that it will be a matter of taste, after all, as to which is the better arrangement. And now as to profit. Great care is taken of these Montreuil trees, the nails are taken out every year, the trees

moved away from the wall, the holes filled up, and the walls whitewashed; then there is the sheltering and pruning: so that, unless where labour is comparatively cheap, as it is in the neighbourhood of Paris compared at least with London, I hardly think that it would pay better than our system, and I question whether after all as large a quantity of Peaches might not be had from a space of wall covered with a large tree trained after the English system, as if it were filled with a larger number of trees trained on the French system. And I would again repeat it, that in no private garden where the attention of the gardener is called off to fifty different things, could such a system be successfully carried out. Why do the French Peach growers, with their favourable calcareous soil and bright summers, allow the Parisians to be dependant on English gardeners for good Peaches in May or June? Might not heated creche-houses of a cheap and simple nature be found a profitable speculation?

Does this system make Peaches so much more abundant in France than in England? I left England in the middle of August; the last of the house Peaches were being then sold in Covent Garden, they fetched 2s. 6d. a-piece at Solomon's—I went to Chelvey, on the Boulevards, the day after, and found the Montreuil Peaches selling at one franc and a half, but I should have much preferred the English. By-the-by, what a curious thing it is one hardly ever sees a Netarine in Paris. Of course there is an abundance of Peaches to be had all through the summer, but I do not envy the taste of the man who considers that there is anything of flavour in a "Pêche du Midi."

My own conclusion, then, is simply this, that it is not a matter of training but of protection that is, generally speaking, the fault of our gardeners. A gentleman who has a wall ought never to be satisfied unless he have such a system of covering as my friend Mr. Badelyfe adopts, and with such a system, carefully carried out, he may, I believe, generally calculate (not always, as last season showed), on securing a crop of Peaches.—D., *Deal*.

#### CULTURE OF THE MELON.

It might be interesting to some of your readers, but it would serve no practical purpose, to trace the introduction of the Melon from Persia into Italy, and from thence into Spain, France, and England. Persia, we are told, is still celebrated for its Melons. Travellers and residents in India have described the Melons cultivated in that country to be of excellent quality, but I do not think that they can be compared to the varieties now grown in England. I had seeds of a variety much prized in India, and named the Peshawar Melon, fruit of which are brought into Bombay and sold at a guinea each. Fruit ripened here in the autumn of last year, but it was not in any way comparable to our English varieties. Grown out of doors in India, under certain circumstances, the fruit might be eatable; it was not so cultivated under glass in a Melon pit.

In this country the Melon must be grown under glass, either with or without the aid of bottom heat. The common old-fashioned dung frame is the method pursued by the majority of gardeners. This method is very well adapted for summer work, but is very uncertain for growing early Melons. The usual method of preparing the fermenting material is to obtain a quantity of stable manure and freshly-gathered leaves, and after throwing the leaves and manure together in a heap, it is turned over two or three times until the "rank steam" is thrown off. Then the ground is marked off a foot longer and a foot wider than the frame, and on this the material is placed.

When a Melon bed is prepared in this way, not unfrequently the material is overheated, and when linings are added to the frame, the heat cannot penetrate to the centre of the bed. When I first attempted to grow Melons at this place, stable manure could be obtained in abundance, but no leaves. I found an excellent substitute, however, in a quantity of tussocky grass, which was rather too common in the marshes. Several cartloads of this I had grubbed up by the roots and mixed with the dung. I have tried various methods to prevent the material from becoming overheated, and at the same time to allow the heat from the linings to penetrate to the centre of the heap when linings are required. I find the following to be as good as any: proceed to build up the heap in the usual way until it is 18 inches high; several rows of drain pipes are then laid on the dung from back to front, at about

2 feet apart; a depth of 18 inches more fermenting material is then laid over the pipes, when another row is laid on as at first. The remaining material is now added, finishing the heap 4 feet high at back and 4 feet at the front. There will be no danger of the heap heating too much, for the air being allowed to circulate through the heap at intervals of 18 inches by 2½, prevents this; and when the frame requires a lining of hot dung, which will be in about from four to six weeks, the heat will penetrate in the same way to the centre of the heap. If drain pipes are not to be obtained, a layer of faggots placed on the ground for a foundation will be an advantage. In a week or ten days the frame will be ready for the plants.

The way I manage for early Melons is this: a heap of fermenting material is placed in the early vineyard about Christmas, and on this the Melon plants are raised; six seeds are sown in a 5-inch pot. The soil ought to be good, sweet, turfy loam in a moderately moist state, as it is not desirable to water the Melon plants before they are potted-off singly into clean-washed pots of the same size. The young plants ought to be potted-off as soon as the seed leaves are fully expanded, and ought to be placed as near the glass as possible, as thus early in the season they are liable to be drawn up weakly.

Prepare the bed for the plants by placing a layer of turf with the grassy side next the manure, covering the entire surface of the bed, and in the centre of each light place a hillock of good loam, without any admixture of dung, and on this plant two of the Melons; one plant would be enough for each light, but two are safer, as they are rather liable to canker when grown in this way. The leading shoot ought to be stopped at the fourth leaf, and plenty of fruitful shoots will be thrown out. Early in the season the frame will require to be double-matted at night, especially in severe weather. The next operation will be setting the female flowers, and this ought not to be done until as many are expanded at one time as are intended for a crop. About eighteen fruit will be a good crop for a three-light box if the frame is 6 feet by 12; more fruit may be obtained, but not of such good quality. A sharp look-out must be kept for canker, and as soon as it is observed a little dry lime must be applied to the part; this will arrest its progress, and allow the plant to ripen off the fruit.

Melons are also adapted for pot culture, and are useful for filling vacancies in houses or pits. For pot culture the plants ought to be prepared in the same way as for growing in frames, except that the leading shoot ought not to be stopped. A very neat and elegant method of training for pot culture is to train the plant to a trellis somewhat on the umbrella system. This is composed of an iron rod, above which are fastened two circles of stout iron wire. The outer circle ought to be 2 feet in diameter, and the inner one 1 foot; the stem should be 2½ feet in height, and the fruitful shoots must be trained to the circles. 13-inch pots are a good size to fruit the plants in. The compost should be the same as before, but with some rotten manure mixed with it.

I now come to the best way of growing Melons, and that is in heated pits or houses, the plants being trained to wires after the manner of Vines. The form of house best adapted for them is to some extent a matter of taste, as they do well in lean-to's, span-roofs, or half-spans. The only objection to the equal-span roofs is that there is too much glass surface exposed for early forcing, otherwise there is no doubt that this is the best form for summer. The form I most approve of is the half-span, as this is adapted both for early and summer work. The Melon houses here are 11 feet wide, and heated by four rows of 4-inch pipes for top heat, and two rows of 3-inch pipes for bottom heat. The beds run along the front, and are 5 feet wide. The plants are trained to a moveable wire trellis, which is moveable in order that the wires may be 9 inches from the glass in winter, and 15 inches in summer; they were fixed in this way to suit early Cucumbers, and one would suppose that what is good for them would also suit the Melon.

In preparing the plants for this system of culture, the leading shoot must not be stopped until it has nearly reached the top of the trellis. The compost for Melons grown in this way ought to be ten parts of good loam to one of rotten dung. Some cultivators are careful not to allow any admixture of manure with the soil used for Melons, but I think a little an advantage. I planted two houses about the middle of June last year, and as the trellis is raised from the bed about 2 feet 6 inches at the front, I had each plant in one of the houses planted in a 2-feet-long drain pipe 9 inches in diameter. I thought the plants would sooner reach the trellis, and, as they were all raised from seed at the same time, that a week or two

would be gained, but I was disappointed; the fruit was not ripe sooner, nor was it of such good quality.

The following varieties were planted—viz., Hybrid Cashmere, Scarlet Gem, Cocoa Nut, Victoria, and Bousie's Incomparable. Victoria and Cocoa Nut I would not grow again; the Cocoa Nut is a very good Melon, and keeps long after it is ripe, but it is surpassed by the others in flavour. Scarlet Gem is very liable to crack if it is overgrown. I commenced to cut the fruit on August 24th; I had then three Scarlet Gem, weight 6 lbs. 9 ozs.; August 26th, three Cocoa Nut, 9 lbs. 8 ozs., and two Hybrid Cashmere, 9 lbs. 2 ozs.; August 27th, four Hybrid Cashmere, 17 lbs. 11½ ozs., two Victoria, 5 lbs. 15 ozs., one Bousie's Incomparable, 4 lbs. 3 ozs.; August 28th, two Hybrid Cashmere, 10 lbs. 10 ozs.; August 30th, three Bousie's Incomparable, 12 lbs. 5 ozs. In the first week of September all the Melons were cut, making the total weight up to 101 lbs. 13 ozs. from ten plants, in a house 30 feet long. The heaviest Hybrid Cashmere was 6 lbs. 5 ozs.; the heaviest Incomparable, 4 lbs. 11 ozs.; the heaviest Scarlet Gem, 3 lbs. 8½ ozs.; the heaviest Victoria, 3 lbs. 4 ozs.; and the three fruit of Cocoa Nut weighed together 9 lbs. 8 ozs. I do not publish these weights because I think them anything extraordinary; on the contrary, I do not consider it a large crop, as thirty fruit only were taken from the plants, or an average of three from each plant. One scarlet flesh and one green flesh from one of the compartments carried off the first prize in their respective classes at the Edinburgh International Show in September last, consequently that would be sufficient to prove that the quality was good, the varieties being Bousie's Incomparable and Scarlet Gem.

In growing Melons, the worst two foes to guard against are canker of the stem close to the surface of the ground, and red spider. As prevention is better than cure, in planting raise a small mound of earth, and on this place the Melon plant, so that in watering the surface of the bed the water will not lodge round the neck of the plant. If canker appear, apply dry lime to the part affected. Some writers recommend sulphuring the pipes once a week, but very great care must be taken that the pipes are not overheated, as the leaves are very easily injured. A little guano water in the evaporating troughs is beneficial. This, with a regular temperature not over 60° at night from fire heat, will tend to prevent the appearance of red spider.—J. DOUGLAS.

### NOTES ON ROSES.

As to new Roses, I think that the best of them is Duke of Edinburgh. I recollect seeing a very fine coloured bloom of this in 1867 at the Crystal Palace Show, and was much struck with its truly splendid colour. Last year, however, I did not notice it, and thought that possibly it might be one of those flowers which only come good once in a century. All doubts, however, as to its being quite first-rate as a flower were dispelled at the Crystal Palace Show last summer. Who that saw that glorious bloom—I think it was in Messrs. G. Paul & Son's forty-eight—will ever forget it? I speak of this one bloom because it was so superior to all the rest, but in truth this Rose was shown in good form in numbers, and was very good on the pot plants. Judging from my single plant of it, I fancy the wood will be found rather thin and wiry, although it is a good grower. It is a special kind to get buds from, these being very plump and prominent.

I have said that I think the Duke is the best Rose of 1869, but I think Mr. W. Paul's Princess Christian, to come out in 1870, is upon the whole quite as valuable an addition to our Rose list. It is a good robust grower, and of a colour much wanted. I am much mistaken if this flower do not turn out first-rate. In colour it is almost identical with Madame la Baronne de Rothschild, but wood and foliage resemble Victor Verdier, from which I should think it is a seedling.

The next best new Rose at the Crystal Palace was, in my opinion, Elie Morel, a truly lovely and apparently constant flower. I see this is a Rose of 1868. A stand of blooms of this, shown, I think, by Messrs. Paul & Son, was most beautiful, and I noticed everybody making a note of it as to be obtained. I hope it is a good grower, though the only plant I have is weak; possibly this arises from its having been found a "good thing," and consequently having been propagated to death. As far as my memory serves me, it is a rosy pink flower; at any rate it is a flower in the lighter shades of pink or rose like Marguerite de St. Amand.

I see the next best Rose of the newer kinds was, according

to my ideas, Vicomtesse de Vezins. This is a beautiful flower, in the same line of colour as Elie Morel. This is not at present strong with me, possibly for the reason given above. I thought Reine du Midi the next best Rose, but I saw only one bloom, and I am inclined to think from what I have since seen and heard that it will not open. Madame Alice Dureau (a flower of 1868), is, I see, next on my list of specials. I cannot call it to mind just now, but I see the catalogue say, "clear rose." I can confidently say, however, that it was very good indeed as shown, and that it is a good free grower, for I have it, but whether constant or not I cannot tell at present.

The next two Roses I particularly noticed as good were Nardy Fierce and Thérèse Levot. I am not sure when these Roses were brought out; they were, as shown, very fine, and worth adding to the choicest collection, if constant and good growers. Abel Grand, too, I thought very good indeed, quite surpassing as shown, and in some quantity too, Marguerite de St. Amand and Princess Mary of Cambridge, which are in the same line of colour.

Arienne Christophe is a nice addition to the Tess, it is so distinct, and is a good grower. Marguerite has flowered well with me, but I cannot say much for it. Montplaisir seems very like Gloire de Dijon, judging from autumn blooms, which, however, may have been much out of character.

I hear of English seedlings being raised in various quarters, and indeed I have seen two or three very promising flowers from hets set last spring. I am very glad to find that English raisers are coming forward. There is no reason why we should not obtain what the French do not seem able to give us—viz., a good white. We want a white Victor Verdier, and I am convinced it can be had in two or three generations; in fact, Princess Christian is a long step in that direction; or a white Charles Lefebvre, or the last coloured like Prince Camille! The fact is there is room for vast improvement in the Rose yet. We want good-form, good-coloured, large flowers on robust and hardy wood. Can we pick out three Roses that fulfil these conditions? Even the best Rose-grown, Marie Baumann, is not satisfactory to me in the wood, it is not compact or stout enough.—P.

### HYGROMETERS.

Your article in page 517 of last volume touches a subject which is a great desideratum to gardeners—viz., an inexpensive hygrometer, which can be read off as easily as a thermometer. Daniell's is objectionable, both from the trouble it involves and from the necessity of using sulphuric ether, which is expensive to buy and difficult to preserve. The wet-and-dry-bulb is perhaps the best hitherto known. The catgut I have tried, using violin strings spliced together, but catgut is not sensitive enough. After syringing the house, and also the catgut itself, a considerable time elapses before the full amount of humidity is shown. Besides this, catgut does not shorten perpendicularly, but with a circular motion, turning the weight round at the bottom, and impeding its being used as an index, though possibly this may be owing to the particular make of a violin string.

But besides the hygrometer, we want information as to the natural dryness of the countries whose productions we grow here. We want to know something of the atmosphere of Astrachan, where, according to Humboldt, the finest Grapes in the world grow, and also, according to general report, most excellent Melons. Also, for Grapes, that of the Cape of Good Hope and Madeira; for Peaches, Baltimore; for Figs, Toulouse and the Greek Archipelago; for Pines, Jamaica; and so forth. This information might be obtainable as regards English, colonial, or American stations, but I fear it will be a long time before we can have an observer located in Mazander on the Caspian, where the Apricot is said to grow wild.—G. S.

### CHEAP PROTECTION.

I HAVE saved dozens of Calceolarias, Pelargoniums, and other tender plants growing in the open borders during the late very severe frosts (our thermometer fell to 19°), by a very simple process, but probably well known—just collecting all the large flower pots, filling them lightly with dry leaves, and placing them over the plant cut down; the hole in the pot being stopped, of course, with a lump of anything at hand. The thermometer being at 50° this morning, I was tempted to remove the pots: the plants appear all safe, and some are already

shooting. The plan was adopted in a great emergency, twilight coming on, and a severe frost setting in, and it succeeded.—DEVON.

### WHAT MAY BE DONE IN A VINERY.

ALLOW me to ask a few questions, also to state my position in reference to my vinery. Before I occupied the premises I now have, there were a number of bunches of Grapes which I thought were badly grown. On looking over your *Journal* of November 25th, I found an answer to "A YOUNG VINE-GROWER," telling him how to refresh and top-dress a Vine border. I took the hint and set to work. I had brought one load of good grass sods of from 2 to 4 inches thick, chopped them up in the yard, and then added 2 cwt. of half-inch bones, loam, charcoal, and lime scrapings. When all was mixed together I began to remove a little of the soil, which was a mixture of clay and other soil; I thought according to your doctrine that was not suitable for Grape-growing. I had it taken out about a foot deep, and could see few or no roots. Two or three cart-loads of turf were brought, with more charcoal and lime, to make the border a little higher than before. It was then covered with horse manure, and plastered with cow dung to keep the heat in and the rain out. The border is 36 feet long by 9 wide, and inside. The house is 35 feet long, 12 feet wide, and 6 feet high at the front, with glass slides. It is 16 feet high at the back, with three small slides at the top. It contains ten good fifteen-year-old Vines, neatly dressed, cut back, and painted with train oil and sulphur, all being ready for fire this month. The names of the Vines are Black Damascus, Canon Hall Muscat, Muscat of Alexandria, Dutch Hamburgh, Barbarossa, Grizzly Frontignan, and three are without names.

Having given a detailed account of my doings, and a description of the house facing the south-east, I shall be glad of your opinion as well as advice how to proceed. Could I grow Mushrooms, Cucumbers, or trees, and a few plants, without injuring the Grapes? If so, I shall be glad of your directions.—SHEFFIELD.

[We approve of all that you have done as to top-dressing the Vine border, if we understand the processes aright. In forcing such Vines on the 1st of January we should have been satisfied with 2 or 3 inches of rich top-dressing after removing the surface soil; and a covering of about 1 foot of litter or tree leaves, with a little heat, would have enticed the roots up into the new material, when a little more could have been added. There is one thing which we would not have liked to have done—that is, painted the Vines all over with train oil and sulphur. If the Vines were ours we would wash the most of the oil off by a strong lather of soap and water. We have seen other plants suffer from oil, in fact, been killed by it, but we do not recall an instance of having seen oil applied to Vines, so we cannot speak from practice or observation; still, we have doubts of the oil painting. Your Vines are of good kinds, but Black Damascus and Canon Hall Muscat require a high temperature, especially at setting and ripening time, in order to secure regular bunches and good-flavoured fruit. For many details and general directions we can recommend "The Vine Manual," which you can have, postage paid, for 2s. 8d. in stamps. Most of the other matters just instanced require more consideration.]

Any vinery may be made into a plant house when the Vines are in a state of rest, say in your case from September to February; for after the Vines break, and a higher temperature is required, the plants that would suit in winter would have too much heat then. When the Vines cover the roof with foliage, any stove plants or tender annuals will do well in front of the house, or in any of the apertures where light can reach them. All such vinerias may be made into cool greenhouses in winter if the average temperature at night do not rise higher than from 40° to 45°. When bedding plants are thus stored, they should be taken out when the temperature is raised above 50°; otherwise they will feel the change more when moved. In all cases of making the most of such a house, much will depend on skill and foresight in moving in time.

Many flower and shrub-forcing could be carried on in such a vinery, for instance, bulbs and Roses, but the plants should be moved before they would be rendered tender by the additional heat, and be hardened off by degrees. Supposing that you start with 45°, and rise to a night average of 50° in eight days, to 55° in three weeks, and to 60° in a month, you could have no better place for starting Roses in pots, or bringing on good plants of scarlet Pelargoniums; but both would be out of place when

you raised the temperature to from 60° to 70°. Much, however, may be done by frequent moving, and giving the plants as much light as possible.

As to fruiting plants in pots, you may manage Peaches, Nectarines, Figs, &c., in pots very well in the open spaces, only it is essential, as respects Peaches and Nectarines, that they be tolerably forward, so that you may have them in bloom and set before the Vines begin to push much. This is easily done by making the forcing more gradual—that is, keeping the house longer at an average night temperature of 55°, and this, with a rise from sunshine, will enable you to give enough of air to the Peaches in bloom. The flavour of the fruit when ripe will greatly depend on the direct light you can give. In all houses intended for much-in-lie the Vines should not be close, so as to cover the roof with a dense foliage.

Cucumbers may also be grown in such a house, but they are not to be commended, as they are more liable to the attacks of insects in the hands of those not well experienced. Of course it would be of no use growing Cucumbers in the open atmosphere of such a house until the average temperature at night were fully 65°. As you do not say how the inside of your house is arranged, we shall mention three modes of growing Cucumbers successfully. First, by making a bed inside the house, and placing a frame of glass over it. In this way the Cucumbers may be started, and have a suitable temperature when the general temperature of the house is only about 56°—that is, 10° or 15° less than inside the frame. When the average temperature of the house ranged from 65° the ashes and frame would scarcely be needed, and we have allowed the cucumber plants to grow freely beyond their first space. Secondly, there is often a pit or low bed in the centre of the house, acting, so far as pot plants are concerned, much the same as a stage. In the bed, Cucumbers will do very fairly as an under crop if the roof is not too densely clothed with Vine foliage. The third mode we would allude to is that most generally suitable—namely, growing the cucumber plants in boxes or pots, say from 12 to 18 inches in diameter, set over or close to the heating medium, be it flues or pipes. Cucumbers bear very profusely under this treatment, and, well watered, even a 12-inch pot will produce many fine fruit. The pot may be placed where there is an opening, but generally the plants do best when close to or over the heating medium. If this we have raised the plants in a small dung-bed frame; we have also raised them in a vinery by securing extra heat by covering with a hand-light, &c., and shifting the plants as they grow until we could keep them at the warmest place, and they filled 6-inch pots with roots. By that time the heat of the house would be suitable, say from 45° at night, and the plants were at once transferred to their fruiting pots, using fresh sandy fibrous loam, some sweet decayed leaf mould or cow dung, and a good sprinkling of small pieces of charcoal. In potting, the bell would be left at least 2 or 3 inches from the rim, to permit of frequent slight rich top-dressings. The best position for such pots would be over the heating medium, and the manner of placing them there would be to fix a pan of the suitable size, put something in the pan, as three pieces of stone, &c., say from 1 to 2 inches in height, on these set the pot, and then keep the bottom of the pan or basin supplied with water. The bottom of the pot may just touch the water. We have seen, and have grown, fine Cucumbers by this mode. As soon as the Grapes show signs of ripening, the cucumber plants should be removed, as the drier atmosphere then required would not be so suitable to the cucumber. We would, therefore, confine such cucumber-growing in a vinery chiefly to early fruit. We may here mention that we have had fine Cucumbers in such a house, where light could be obtained near the apex, by having boxes or pots on a shelf, say 3 feet from the top of the back wall. In this case the wall above the boxes should be black and not white.

As to Mushrooms, no place could answer better for a bed than the middle of the house, say from September to the middle of February. After March, if you commence to force in January, the air will be too warm for them, unless you keep them cool by covering, and then having the surface of the covering constantly moist. They do well all the winter under a stage filled with plants, if care be taken that there is not much drip from watering the plants, or if there is a waterproof cloth or covering over the bed. The bed would be kept warm enough in winter by a covering of clean litter, even when the average temperature of the house was not above 45° at the highest. Many years ago, from a good bed in the centre of a wide vinery, we gathered as many Mushrooms as would have gone far to

pay for the fuel for forcing the Vines. Such a bed may be made of well-prepared material, say in September, and with plenty of air neither Grapes nor Vines would be at all injured, as the bed may be surfaced at once with a little soil to prevent the escape of noxious steam. There is no drawback whatever, unless from the drip of plants on a stage.

One of the best arrangements that we have seen for such a small miscellaneous house was the following:—The house, a little longer, but of the same width as yours; heating pipes round the ends and sides, leaving space for one doorway; a slate shelf, 15 inches wide, all round above the pipes; a walk round, 27 inches wide; and a flat table in the centre, 3 feet from the floor, and 5 feet wide. This might have been slate, or even sparrow wood, but for the Mushrooms below. As economy was an object, the platform was made of oak posts 3½ inches square, the lower end resting on a tile, just like the leg of a table, and the upper end morticed into a longitudinal piece 4½ inches by 3 inches. Good deal, 9 inches wide, and fully 1½ inch thick, was cut into the requisite lengths to go across from side to side, and used in the rough state as it came from the saw-mill. The first board nailed at each side had the next firmly driven up to it before nailing it down, and when done the boards were painted all over with melted pitch, with a good bit of fat or tallow melted with it. When dry this was covered with a couple of inches of clean-washed small gravel for setting the plants on. A thin board, half an inch thick, ran round the sides, so as to hide the ends of the cross boards and stand as a rim 1½ inch above the gravel; another board, 9 inches deep, went all round the bottom, fastened to the upright posts, so as to form the bed beneath. The inside of that board was pitched. The outsides of that and the rim and posts were painted with anti-corrosion paint, and when wet some light-coloured sand was added. The whole looked very neat when finished. No water ever dropped through the pitched boards. The platform has stood many years, and we believe as yet shows no signs of giving way in the least. In this house the Vines were never taken out, and extra heat was not given until the end of February. A part of one of the side shelves could easily be made into a hotbed by shutting in the pipes beneath, so as to form a chamber, and covering with small glass boxes 14 inches wide. Beneath the platform, when all was not used for Mushrooms, a part was easily shut off and devoted to roots of Sea-kale and Rhubarb. It was not uncommon to see a healthy lot of *Pelargoniums* in this house in winter, and, besides good Grapes in summer on the roof, Peaches, Figs, Melons, and Cucumbers from the shelves and bed.

All such variety, however, could only be secured by having other houses, to change plants according to their requirements. When the most has to be made of one house or vinery, where anything like forcing is attempted, we would advise making the Vines the main object, and obtaining as much gratification from flowers as possible in winter by growing as continuous plants such as *Camellias*, *Oranges*, *Eaparies*, *Cytisus*, and more ephemeral plants, as *Primulas*, *Cinerarias*, *Wallflowers*, &c. *Cytisus*, and the like, may be set in a sheltered place out of doors before the house is too hot. The *Camellias* and *Eaparies* will enjoy the heat to make their fresh wood, and may be turned out in a sheltered place in the end of July, to be replaced in the house in October. A vinery so treated may be made very attractive all the winter months, and the Vines will not be disturbed at all as to their necessary rest if the night temperature do not rise above 45°, and at that temperature *Camellias* that set their buds early will freely open their blossoms when assisted with a fair amount of sunshine.

We give this long answer from knowing it will suit many anxious beginners. Meanwhile, though we would not discourage any, we must advise all not to try too many things, or cram their little houses too much at first. For instance, florists' *Pelargoniums* will do no good in a hot vinery; the Scarlet sections will stand heat if they have light enough.—R. F.]

SPRINGS OF SPRING.—Some of your distant readers may feel interested in our climate here in the south. January 4th, the day bright and mild, thermometer at 46°; partridges running about the pastures and calling to each other preparatory to pairing, larks singing, bulbs in warm borders peeping out, and spring seemingly advancing rapidly. We had our only severe frosts from the 26th to the 29th ult. On the morning of the latter date the register stood at 12°. It is rather extraordinary to observe that all or nearly all our blackbirds and thrushes

have migrated, although our Hawthorns are loaded with fine bright haws.—T. R.

### NEW ROSE LOUIS VAN HOUTTE.

This bids fair to be the Rose of the season. I have heard a good deal of it. Its raiser, Lacharme, the raiser of Charles Lefebvre, thinks very highly of it, and I find the following in the last number of "*L'Horticulteur Français*."—"This variety has given occasion to an act of rare probity, which we are happy to record. Last September, at the Horticultural Exhibition at Lyons, the Jury gave the premier prize to a Rose of M. Guillot père. This honourable grower having heard that M. Lacharme had one exactly resembling it in colour, they compared their two flowers, and it being found that that of M. Lacharme was superior, M. Guillot suppressed his own, which had been already announced, and sends out in its place the variety of his competitor, which is the Rose Louis Van Houtte. This conduct of M. Guillot père needs no commentary."—D., Deal.

### WOOD VERSUS EARTHENWARE.

As I quite agree with Mr. Luckhurst in the preference of wood to earthenware, and as I do not like to see an error likely to deceive maintained, I write a few notes in answer to Mr. Rendle's letter in your Journal of the 30th of December. It is quite wrong to say that it would be necessary to plough a groove 1½ inch deep to give space for the glass to be slipped up. A three-eighth-inch groove in the lower piece would be quite sufficient, and a three-quarter-inch plough groove in the upper piece of wood would give a three-eighth hold to the glass on each piece of wood. Then as for the necessity of iron bars, screws, and nuts at a cost, as Mr. Rendle says, of 3s. a-yard, or 1s. a-foot, a wooden division every 4 feet, with a tenon top and bottom to go into a mortice hole in the planks, and fastened with an iron pin when through the outer boards, would hold all together at a cost of about 3d. for each piece of wood. Mr. Rendle warns Mr. Luckhurst against infringement of patent rights. A groove in a piece of wood to slip glass in without putty is, I should have thought, within the capacity of any ordinary carpenter, without having to consult a patent right, and I should fancy was used before Mr. Rendle was born. Again, if a groove in earthenware to receive glass is the main part of the patent, wherein does it differ from Mr. Locker's, who also advertises patent seed pans, cutting pans, &c., with glass sliding in grooves?

I think Mr. Luckhurst would have done better with wood only 7 inches at back and 3½ in front, which would not warp so much, and then mere light galvanised wire No. 5 fastened at the top and bottom with staples, would keep the lengths in place if they were made only in 10½-foot lengths with wood ends. I can have wood delivered here from Hull, a distance of fifty miles, at 1d. a-foot 7 by 1—that is, inch plank 7 inches wide; likewise 2½-in. glass at 3d. per square foot, also carriage pail. I should only groove the upper board three-eighths of an inch, and fasten the glass below with wire pins bent at right angles, which could easily be moved by a pair of wire pliers when it was necessary to remove the glass. The lengths, 10 feet long, 7 inches high at back, and 3½ in front, might be raised on rows of bricks, walled dry, either two or three rows being used according to the height required; and as the wood would rest on brick it would last with ordinary care as long as the outer wood of a vinery or conservatory. I do not think the painting and labour would cost more than 3d. a-foot at the outside, but I am going to make 50 feet to ascertain. This would make the frames cost, glass included, 10½d. a-foot, and a half-penny a-foot more would pay for wire and ends. Bricks at 2s. 6d. a-hundred would cost from 2d. to 3d. a-foot, according to the height to which the lengths are raised: so that in lengths 10½ feet long, which is a convenient size for moving, the cost would be from 1s. 1d. to 1s. 2d.—wood, bricks, glass, and everything.

Mr. Rendle must have a very poor idea of a gardener's skill if he thinks it would be necessary for Mr. Luckhurst to call in a glazier to put his glass into the frames Mr. Luckhurst spoke of; and though Mr. Rendle might find a 1½-inch groove necessary in his patent plant protectors, yet it is, to say the least, a very bad argument to say on the strength of this 1½-inch groove that 3-inch planks would be required.

I have no doubt Mr. Luckhurst will also answer for himself; but, as I before said, as I much dislike to see any state-

ment likely to mislead the public, I hope Mr. Luckhurst will not object to my endeavouring to strengthen his hands.—C. P. PEACH.

I HAVE never questioned the utility of the brick protectors—far from it, rather would I say that all lovers of horticulture are under a great debt of gratitude to the patentee for the introduction of his meritorious invention, but I still think protectors having wooden sides would be preferable for some purposes, especially if made in handy lengths of 6 or 12 feet long, with ends; thus forming useful boxes which could be lifted from place to place, or be put on hotbeds like any other box, and, in fact, form decidedly useful auxiliaries to the brick protectors.

With regard to the objections advanced by Mr. Rendle, I can say from experience that boxes formed of 1½-inch boards are not subject to splitting; that two coats of paint will not only suffice, but if of good quality and well brushed in will last two years; and that, although they are not so durable as earthware, they will last a dozen or more years without needing any repair.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

## ROSES AND THE ROSE SEASON OF 1869.

THE last two seasons have been very trying to Roses, the last season here especially so. Orange fungus broke out early in the year; and although in the spring I carefully cut off with scissors leaves affected by it, it still prevailed extensively, favoured by the very warm weather and lack of rain. After the leaves thus affected dropped off, new and beautiful foliage came out. Alas! a hurricane came on and beat to pieces the leaves on the trees in three of my gardens, the trees near my house—about 450—escaping tolerably well. The effect of these two causes has been to make many of my Roses look of a sickly green in their skins, *alias* chlorosis. I have commenced cutting away some of the worst of it, and hope by judicious treatment and a genial spring to recover them. I doubt whether in the last cold spring the Peach, Nectarine, and Rose trees made any new spring roots at all. On the whole I have had an array of fine blooms, and out my last Roses on the first Sunday in January. The buds still left are many, but too much affected by frost to be of service. I do not anticipate such severe weather as we have had here, because I have observed that when you can skate before Christmas the weather after it is usually less severe. I do not want for some time very mild weather. I should like a mild February, a dry March, a showery April, and a sunny May and June. Next month I shall throw down the molehills, which protect the roots of my plants, and shall put Parker's fork deeply into the land, to admit air to the roots and quicken them.

OLD ROSES.—Some have given up several old and still excellent Roses—namely, *Baronne Prevost*, *Caroline de Sansal*, *Duchesse d'Orléans*, *La Ville de St. Denis*, *Souvenir de la Reine d'Angleterre*, *Monsieur de Montigny*, a fine Rose, and others, for new Roses inferior in constitution and attributes. The above old Roses, and others not named, do splendidly here on the Manetti stock, and I shall not give them up for new trash. There was in 1868 a most curious Rose in my garden at Rush-ton which I should like to see restored—namely, Dr. Reynaud. I had it from Mr. Davis, of Newbury. It was on the Manetti stock, but that terrible winter killed it. It still stands in M. Eugene Verdier's list, No. 450, at 11. 50c., and is thus truthfully described:—"A large, very full, rose spotted with red." It was in my estimate a first-class Rose; the outline was perfectly round; the petals, spotted like a trout, were thick, well disposed, and perfectly smooth at the edges. I told Mr. W. Paul some time ago that I was ready to take a dozen plants of it on the Manetti stock, and I am still ready to do so, as I do not quickly form an opinion, nor quickly recede from it when formed upon sufficient trial.

ROSES OF LATE YEARS.—These are the best that I have had, and they are good—namely, *Alfred Colomb*, *Lady Suffield*, *Mlle. Emile Deyen*, *Marie Baumann*, *Madame Alice Dureau*, *Baronne de Reichenbach*, *Felix Genero*, *Fisher Holmes*, *Annie Wood*, and *Prince de Prusse*.

ROSES OF EARLY YEARS.—*Marquise de Mortemart*, *Souvenir de Poiteau*, *Vicomtesse de Vézins*, *Charles Lee*, and *Duke of Edinburgh*. I expect to find all these good. I shall probably add *Madame Greyven* and the two Tea Roses, *Adrienne Christophle* and *Marie Sisler*. The foreign and English lists sent here do not give the names of the raisers of the forthcoming new Roses.

I regret this, because the best prophecy for the future is the history of the past; and it has enabled me to select a fair proportion of good Roses by studying the raisers as well as the descriptions of the Roses. If I saw the name of Portemer, who raised *William Griffiths* and *Pierre Notting*, it would probably induce me to buy.—W. F. RADCLIFFE, *Dorset.*

## EARLY POTATOES.

WE lately stated in "Doings of the Last Week" that a lot of clearings from flower beds, &c., with some tree leaves at the top, had been thrown into a bed for a couple of frames intended for Potatoes.

Our object was to put in the soil, plant the Potatoes, and as they grew raise the frames at the corners; but owing to the material being wet, it has heated more than we expected—too hot for Potatoes, for though early Potatoes like a little bottom heat, they will not thrive or tuber well if there be too much of it. About 70° at the bottom will be quite warm enough, and then the bulk of the soil would be about 55°. We took out, therefore, from 6 to 9 inches of the top layers before putting in the soil, and as we expect the soil will cool the bed sufficiently, as soon as that is in proper order we shall plant with Potatoes growing in small pots. Tree leaves alone, if collected rather dry, will seldom give too much heat in a shallow bed; but when collected damp, and with grass, &c., along with them, they will often, if only from 18 inches to 24 inches deep, heat too violently for such a purpose, and when they heat so violently, the heat is less regular and continuous. A very mild heat is all that is wanted. In fact, sooner than have too much bottom heat, we would dispense with it altogether, and depend on the heat stored up in the soil heated by the sun before planting in it. Even now the sun has considerable power to warm soil exposed under glass. The same remarks apply to early Radishes and Carrots, though Carrots will stand a warmer bed than Potatoes. Many frames of early Potatoes turn out much worse than might be expected from the appearance of the tops, merely because the roots have been kept much too warm. Something could be done by extra air in fine sunny days, but the Potato would have rejoiced in more heat from sunshine if the roots had been colder. A slight hotbed will be of great assistance, but too much may easily be worse than no artificial heat at all.

Since writing the above, the soil being just in the right state—slightly warm, and having no appearance of becoming more so, we planted the Potatoes, well rooted in small 60-sized pots, and the tops grown from 2 to 4 inches, planting the tallest in one frame and the shortest in another, so as to form a succession. The plants would never suffer from the moving, as the soil was just in a suitable condition as respects heat and moisture, and required merely to be pressed against the ball. A little water at about 60° was dropped in the middle, but this was seldom necessary, as the pots were all watered an hour previously. We have done much with early Potatoes, merely springing them in boxes, the tubers set on and covered with a little rough leaf mould, and then lifting them carefully with the roots adhering. This does very well, especially if the fine fibres do not receive a chill, and, therefore, when planting out of doors, a little drish warmed soil over the fibres will prevent anything like a check; but when an early return is expected we think the tubering takes place earlier when Potatoes are turned out with small balls from pots.

We should like to know the experience of others in this matter. We found that in general plants thus started in small pots tubered earlier when grown in pots, say 12 inches in diameter. Many who cannot manage a frame or pit, or protection out of doors, may easily obtain a few dishes of early Potatoes in pots wherever room can be found under glass. We generally grow some in this way every year, and find them very useful. The Ash-leaved Kidneys, and especially *Myatt's Improved* and *Vetch's Prolific* answer well for this purpose. For pot culture they have an advantage and a disadvantage. When rather small pots—say from 8 to 10 and 12 inches are used, the tubers generally form near the sides of the pot, and, therefore, when the pot is turned up without breaking the ball you can pick out some good tubers without disturbing the smaller ones, leaving them a little longer, as if carefully done not a fibre need be injured. If, however, the growth is vigorous, there is such a pressing against the sides of the pot by the tubers, that some of them, though good enough to eat, will be apt to be deformed and out of shape—a matter of importance when it is desired to have a dish of tubers as nearly

alike in size and shape as possible. Good cooking of Potatoes depends very much on the uniformity in size. As avoiding tubering rather close to the sides of the pot, the best kind we ever had was a round Potato, originally brought from the south-west of England, called the *Wagman*; the true name, if it had one, we never knew, but in this sort the tubers formed quite close to the stem, so much so that we have had fine gatherings from 8-inch pots and not a tuber near the sides of the pot. Fingering out the best tubers, however, injured the fibres, and the best plan with this variety was to wait until the stems began to change, and then take the produce of several pots at once. It was a very nice round Potato. It was not so very abundant a cropper out of doors, and we therefore chiefly used it for the above purpose. Its tubering so near home was its chief characteristic, and by that it may be known to some of our readers. Unfortunately it became diseased and we lost it. The next best amongst rounds which we have found is *Handsworth Early Prolific*, a nice little Potato, but not so free a producer nor yet so large as that alluded to when grown in pots.

We have tried two or three old tubers in a large pot, but on the whole prefer one tuber in a smaller pot, and have had good crops from 8-inch pots, and even pots of less size. It is best in every way to have only one strong shoot or sprout from the tuber. We generally place the tuber fully half way down the pot, and use sandy loam and sweet leaf mould made rather firm. Until the shoot is an inch or two above ground the pots may as well be in the dark as anywhere else. We have had them in the Mushroom house, in stoveholes, sheds, &c. We lately made a shelf in front of a Peach house, the roof coming to within 18 inches of the ground, by placing a wide board on some large reversed pots, the board affording room for two rows of Strawberries. Most likely we shall have Potatoes in pots underneath, and draw them out as the shoots appear.

Many of our readers with their one or two little houses might obtain useful lessons by noting the scheming and contriving to make the most of the available space even in large places. We can bring before our mental vision hundreds of houses, where, besides such quickly-connected shelves as the above, to serve their allotted purpose, shelves at back, and shelves suspended from the roof, not an available inch of ground on the floor will be unoccupied so long as any degree of light can reach the plants there. Bare back walls of houses furnish grand storage resources in winter when the roof is comparatively free from foliage; and shelves, &c., can be put away in summer.—R. F.

### POINSETTIA PULCHERRIMA CULTURE.

HAVING seen and grown this beautiful winter-flowering stove plant with various results, and having this year been very successful, I will describe my simple treatment.

Having a hand-light with a moveable top, or, what is better still, a small one-light box or frame at the back of the stove, it should be placed on the flue or pipes so as to have a good bottom heat, as one great point in growing it well is to strike the cuttings quickly. In the second week of August I take off cuttings 3 inches long; the tops make the best plants. As I take them off I dip the ends in silver sand or charcoal dust to prevent bleeding; I then insert the cuttings in 3-inch pots, the soil used being a mixture, in equal parts, of loam, leaf mould, and silver sand. I plunge the pots if possible in the hand-light, box, or frame, then water them with a fine rose, and shut up the light to prevent flagging. They must be kept thus for a few days, when a little air may be given at night, always bearing in mind to prevent flagging, and not to shade if possible. In ten days or a fortnight the cuttings will be struck, they must then have more air; and as the roots come through the bottoms of the pots the young plants may be potted, the strong ones in 6-inch pots, and the weaker ones in 4 or 5-inch pots. The soil may be composed of two parts loam, one of peat, one of leaf mould, and one of sand, with a little dry cow dung. They must then be watered and placed in the hand-light, keeping them close for a day or two, then gradually increasing the air, so as to harden them off ready to be set on a shelf at the back of the stove. Keep them as near the glass as possible, and take great care not to let them suffer from want of water. At the end of October or beginning of November they will be showing flower, when they may be watered occasionally with clear liquid manure, that from cow dung being the best.

By following the above treatment the Poinsettia will be splendid in December. This week one which I measured was

12 inches across the red floral leaves, which I think is rather an unusual size; and the foliage was of a deep green. The Poinsettias are admired by all who see them, and being very dwarf—from 6 to 15 inches in height—they are very suitable for dinner-table decoration.

The points to be observed in growing Poinsettias are—1st, The cuttings should be put in during August, giving them plenty of bottom heat; 2nd, Never to allow them to flag; 3rd, Do not overpot the plants, but give them plenty of good drainage; 4th, Keep them growing in the warmest part of the stove, giving them plenty of air.—STEPHEN CASTLE, *The Gardens, Bent Hill, Prestwich.*

### EASTER BEURRÉ PEAR.

I wish some of your correspondents in the south of England would give their actual experience of this Pear when grown against a wall with an aspect between S.E. and S.W. Mr. Rivers, no mean authority, says that it is often mealy and insipid from a wall; and I can only say that is seedling, Rivers's Winter Beurré, which I thought to improve by placing against a S.E. wall, produced fruit this year, fair to the eye, but quite mealy and insipid. Now, Mr. Robinson, in "*The Parks, &c.*," states as a fact, that in sultry France a wall is considered very needful to perfect the Easter Beurré. It is a fruit well worth growing in perfection, so I pray your correspondents to communicate their experience.—G. S.

### GARDENS AND GARDENING AROUND

#### HAMBURG.—No. 2.

CONSUL SCHILLER'S, ALTONA.

A SHORT distance from Neumühlen, on the same road, we come to the residence of Consul Schiller, a name well known in the gardening world, especially to lovers of *Oreliads* and other stove plants. Who does not know of *Platanopsis Schilleriana*, for example, besides many others named after this great patron of horticulture? The place is possessed of much the same character as that we have already noticed, with the exception of being on a somewhat smaller yet more garden-like scale. It is so full of riches, so full of all that is rare, and costly, and beautiful in horticulture, and all so full of health and vigour, so beautifully cultivated and attended to, that words fail to express our sense of the pleasure afforded us, our appreciation of the worth of this splendid collection, and the merits of the superb cultivation displayed in this magnificent establishment. Consul Schiller is, we believe, himself well versed in practical horticulture; ably seconded, however, he must be by his obergartner Herr W. Necker, who, we believe, was for some time previously in the establishment of Mr. Tucker, at Wandsworth. The place is altogether lovely, the views of the beautiful river below ever pleasing; and the grounds are varied yet dressy, with here a knoll, there a dell, every tree, every plant, being a specimen with a character of its own. Beautiful specimens of the more choice Conifere are grouped here and there in the grounds. *Arucaria imbricata* is 20 feet high; but this has to be protected from the rigours of a German winter, the frosts being more severe than in this country. *Thuja gigantea*, *Thuja borealis*, each about 15 feet high, *Cupressus Lawsoniana* 20 feet, with many others, are all growing exceedingly well. But the great feature of the place lies in its hothouses.

Orchids occupy the lion's share of accommodation, separate houses being devoted to the different families. Here we enter a house mainly devoted to *Vandas*, containing hundreds of plants—good-sized plants, too, of every variety, all growing in the greatest luxuriance, their big fleshy roots hanging down like great cables. One plant of *Vanda cerulea* would go hard to beat any in this country, having ten flower stems. Another house is devoted to *Phalaenopsis*, which, although good, are not quite equal to the *Vandas*, *Cattleyas*, *Laelias*, &c., which occupy another house. Here, again, is another house full of *Cypripediums*, scores of plants in large pans 2 feet in diameter, and in most superb condition. How beautiful these must be when in full blossom! Another house we find principally filled with *Nepenthes* bearing some magnificent pitchers. Then, again, in the stoves proper are all the fine new ornamental-foliaged plants in magnificent condition—*Anthurium regale*, very superb, *A. magnificum*; *Alocasias* of all sorts; *Musa zebrina*, very handsome; *Musa vittata*; *Caladiums*, &c.

That which riveted our attention the most was, however, the

collection of *Sarracenia*s and *Cephalotus follicularis*. Fancy for a moment pans of these plants upwards of 2 feet in diameter, in the most vigorous condition, the individual pitchers of the *Sarracenia*s over 6 inches, and thirty or forty of these in the pan, and it is not one plant that is to be seen so, but many; and scores smaller are growing everywhere, in the stoves, in the cold houses, and in the open air in the greatest luxuriance. Who would not be tempted to cultivate these plants, especially the *Sarracenia*s, when it is seen how easily they can be grown? Here we seem to spoil them by coddling. Herr Winckler gives them the most liberal treatment; his plants are potted in very rough sandy peat, liberally supplied with drainage, and abundantly supplied with water. These seem to be the great points—abundance of moisture without stagnation, and a coldish rather than a warm temperature.

Forming a group near to the house, beneath the shelter of some friendly trees, we espy a brilliant mass of some lovely scarlet blossoms; at the distance we are sorely puzzled as to what it can be. Is it a new *Pelargonium* or a new —? No, it is simply *Disa grandiflora*, the lovely South African terrestrial Orchid. Thus coming upon it we were not a little startled. Never had we imagined *Disa grandiflora* so lovely, never had we thought it would have made such a display, and little did we think it could anywhere be seen cultivated so well and to such an extent as it was to be seen here. With us it is seldom to be met with, around Hamburg it is one of the commonest plants. Mr. Leech, of Clapham, did much to encourage its cultivation, yet excepting himself few in this country have succeeded with it. The plants at Consul Schiller's (about thirty) in 8-inch pots were about 3 feet in height, with from six to eight stems in each pot, and each stem having three or four flowers, and some six or seven, open at one time. These plants, we understood, were potted in rough peat and lumps of charcoal, supplied at all times with abundance of water, being kept in almost a semi-aquatic state, and grown in a cold pit from which frost is simply excluded.

On the opposite side of the road Consul Schiller has yet another garden called the Nursery, under the direction of another overgartner. Here are all the usual appendages, fruit, &c., and again more stores full of glorious plants, as *Alcornoia macrorrhiza variegata*, very fine; *Alcornoia Lovii*, with leaves 2 feet in length; *Alcornoia acuminata*, a very fine variety; and a splendid plant of *Caladium Belleyi*, with very large and fine leaves. Here also are a magnificent lot of *Vandas* in fine condition, *Cephalotus follicularis*, upwards of a hundred fine plants of *Sarracenia purpurea*, and so much of riches that we were glad to retreat and bend our steps elsewhere.

We would just say that Consul Schiller was not an exhibitor at the great Show; yet nothing, we believe, gives the proprietor more genuine pleasure and satisfaction than to show his superb collection of plants to anyone interested in horticulture.

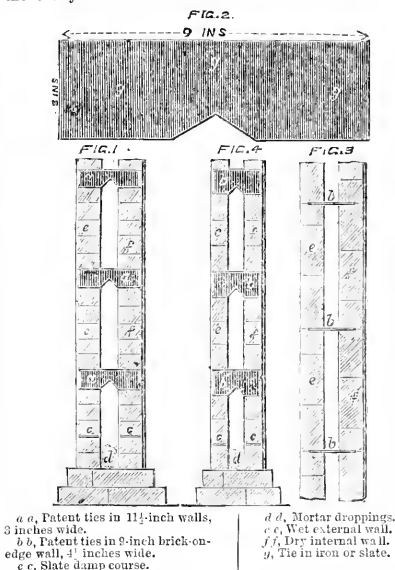
## IMPROVEMENTS IN THE CONSTRUCTION OF HOLLOW WALLS.

MR. E. TUTT, of Fareham, Hants, has patented an invention having for its object improvements in the construction of hollow walls. By constructing walls hollow or with an air space between the two faces they are rendered impervious to moisture, and if the two sides of the wall are properly tied together a stronger and better wall can be made than would be obtained if the same material were arranged to form a solid wall.

Fig. 1 is a vertical section of a wall built according to this invention, with wall ties consisting of flat plates built in to the vertical joints of the wall. Fig. 2 shows one of the wall ties; it may be made of any strong material which will not rapidly decay; cast or wrought iron, slate, and zinc are very suitable materials. The wall ties are made with notches on their lower edges to prevent water flowing along them. The width of the wall tie is made slightly greater than the thickness of a brick, so that it may bear on the bricks above and below it, and so be very firmly held in the wall; the length of the tie is such as to admit of its passing across the cavity in the wall and being firmly embedded in the brickwork on either side. The thickness of the wall tie is only such as is requisite for strength, and its ends may be perforated to cause the mortar to obtain a firmer hold. The walls may receive any suitable coping at the top. Fig. 3 is a horizontal section of the wall shown at fig. 1.

A still lighter wall than that shown at fig. 1 may similarly be

built, but with the bricks laid on edge in place of flat, as is shown at fig. 4, the dimensions of the wall ties being varied accordingly. Thicker walls may also be built when required, the additional thickness being given on either or both sides of the cavity.



We may add that the ties are supplied by the patentee at very cheap rates, and their use undoubtedly effects the prevention of damp, besides a saving of time and material in the construction of walls.—(*English Mechanic and Mirror of Science*.)

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

Should your garden be imperfectly drained, lose no time in attending to this. Never allow one drop of the sewage from the house or pigsties to drain away, or it will deprive the garden of that which would enrich it. The digging and trenching of ground should receive early attention. Trenching is to be preferred unless it was done last year; if so, do not neglect deep digging, leaving the ground as rough as possible, particularly if the soil is tenuous. Fork it over frequently in frosty mornings, likewise the ground trenched this season. Doing so will mix the virgin soil with a portion of that which has been previously exposed, rendering it more congenial to the roots of plants. Embrace every favourable opportunity of stirring the soil amongst winter Lettuces, Onions, Broccoli, and Cabbages, filling-up all vacancies in the latter. If you have your ground in readiness for the various crops, proceed to plant a few early *Potatoes* in a sheltered situation; if they have begun to grow, be careful not to break the young shoots, as they are the best; to avoid this, place the *Potatoes* sideways instead of upright. Sow a few Longpod *Beans* in a patch, to plant-out between the rows of *Potatoes*, or in some other suitable place towards the end of the month. Sow *Onions*; a mixture of Brown Globe, Portugal, and Deftford is preferred. Sow in drills 10 inches apart, forming the beds for this as, in fact, for all crops, north and south. In some sheltered place sow a little *Radish* and *Lettuce*. Shelter herbs and other tender plants from sharp frosty winds by sticking evergreen branches round them, or a few hay or straw ropes twisted round a few sticks. Some such shelter in exposed situations will preserve plants that would be lost if not protected, as sharp frosty winds often prove more destructive than long-continued yet calm frosts.

## FRUIT GARDEN.

Finish the pruning of fruit trees; the refuse should be deposited in the ground while trenching, or laid up in a heap with other material, such as sawdust, ditch or road scrapings, &c., and left to decompose. This will be found valuable manure. The great utility of charcoal and wood ashes for gardening purposes is admitted by all. Whilst the felling of trees, the cutting of hedges, and thinning of woods are proceeding, now is the time to lay-in a stock for the year. The process of burning is very simple. Begin by burning all the largest of the brushwood as a centre of operations, following-up with the smaller wood, and when burning well cover the whole with the rough refuse of the kitchen garden which has been for some time collecting; finally, put on a coating of turf or soil, double if of turf, the latter being reserved for potting purposes. The material thus managed will furnish large masses of charcoal for Orchids, smaller lumps for drainage to pots, and wood ashes in abundance for dressing seed beds of any plants which require fresh material. Everything in this department ought now to be in a forward state. If any planting is unfinished it ought to be done as soon as possible; also the pruning and tying of Raspberries, &c. As Gooseberry and Currant buds are much advanced, should severe frost or snow set in, birds, especially sparrows, will become very destructive to them. Pieces of different-coloured cloths, or feathers, tied on strings and stretched across the rows, would be a protection. Stake all newly-planted trees or bushes to keep them from being shaken by the wind. After pruning the Gooseberries and Currants, it is well to top-dress between the bushes a little. To accomplish this draw a little of the surface soil away with a hoe; then apply the manure, and finally soil over the whole about 2 inches deep.

## FLOWER GARDEN.

Do everything now that will lessen the labour to be performed when the busier season of the year arrives. Trench all vacant flower beds, and at the same time add such exciting or fresh materials as may be necessary. In stiff soils the addition of charred materials will be very beneficial. The deeper and oftener these beds are turned before planting-time the better. On every favourable opportunity stir-up the surface of those beds containing bulbs which have been battered by the rains; this will secure the free action of atmospheric influences. Any bulbs which remain unplanted may be put in during mild weather. Prune Roses, deferring the tender kinds till a later period. The planting of shrubs and choice trees may now be carried on; these operations should be prosecuted vigorously as long as open weather lasts, and be brought to a close as speedily as possible. Nothing has a greater tendency to retard and interfere with the operations at a more advanced season of the year than the late spring-planting of trees and shrubs. Do not let highly stimulating manures enter into the composts for the Ranunculus bed. Night soil has been used with success, forcing a magnificent bloom; but in the succeeding season the roots appeared to dwindle and many were lost. The advice given the week before last will be found one of the best as well as the most simple methods of forming a bed for this beautiful flower. The surface soil in the pans or boxes in which seedling Auriculas have been pricked out may now be removed, and a top-dressing of leaf soil and cow manure well rotted, and blended together in equal parts, may be applied, taking care that no dirt lodge among the leaves. Expose the plants fully to the air in open mild weather, avoiding cutting winds, which are more detrimental than frosts at this season, covering well-up at night, though special care must be taken not to cover them up wet. Carnations will require considerable attention just now; remove all mildewed leaves, stir the surface soil in the pots, and make preparation for potting by turning and well sweetening the soil. Tulips will give the amateur some employment, and as his favourites venture above ground envelope them in a covering of washed or Calais sand as before directed. If possible protect the beds from excessive frost.

## GREENHOUSE AND CONSERVATORY.

Although the expediency of night coverings for the roofs of glass houses has been frequently pointed out and pretty generally admitted, yet hitherto little has been done towards carrying the plan into effect. It is, however, very economical as regards fuel, more especially in old houses with badly-fitting glass. Under such circumstances a trial is only required to prove its utility. Maintain a mild agreeable atmosphere in show houses, and see that all the plants are clean and in good health. If any become infested with insects remove them

immediately, for no course of culture will succeed without thorough cleanliness. Such plants as show signs of growth should, as a matter of course, be potted first. Cinerarias which are cramped in their pots should have a shift, as also Chinese Primroses for spring work.

## STOVE.

Orchids must now be frequently examined, repotting such as may require it. Before applying sphagnum, however, soak it in boiling water to destroy insects, and some even half char their peat for the same purpose.

## FORCING PIT.

Introduce bulbs, Roses, Pinks, Lilacs, and plants of that description in succession. Keep up a bottom heat of 75°, and an average top temperature of 60° at night and 70° by day, admitting air on all favourable occasions.

## COLD TITS AND FRAMES.

If the tenants of these have been housed somewhat dry and kept so, and hardened with abundance of air, nothing is necessary but to follow up these principles, and take care to exclude frost. If, however, severe weather should occur and they become frozen, see that they are not uncovered directly a thaw comes. Let them remain in comparative darkness until they are quite thawed, which in ordinary cases would be about two days, merely turning up the mats or straw a little at both back and front so as gradually to inure them to the light.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

Sowed Carrots and Radishes in a two-light bed with a gentle heat beneath. These were sown in rows 4 inches apart, so that the Carrots will be 8 inches apart when the Radishes are gone, and at that distance they may stand rather thickly in the rows, and as the most forward are drawn more room will be given for the smaller ones. This is not, to look at, a very artistic or business-like way of doing things, but whoever adopts it will be thoroughly surprised at the quantity of fine young Carrots he can draw from a few yards of ground. The Horn and the Small Dutch are best for this purpose.

Rhubarb and Sea-kale.—We never had better before Christmas than this winter, and we attribute the result to giving very little heat, and thus bringing them on very gradually.

## FRUIT GARDEN.

Here our chief work has been finding places for as many Strawberry pots as possible on shelves, &c., having no regular Strawberry house. Most of the plants had previously had the slightest heat under glass, and we have rarely seen the roots of potted plants in better condition. Each plant had the surface soil scratched off thinly, the surface fall of fibres just moved with a pointed stick, and a slight rich top-dressing added, most of the old leaves being removed previously. The old leaves serve as a protection before the plants are set to work. There is always something, however, to keep us gardeners humble. Out of a fine batch of President Strawberry in pots, not a trifle is left, grass mice have demolished the buds so thoroughly. With house and field mice, and even rats, we can wage war with varying results: but these grass-eating or green-fodded devourers we can do little with. In the grass of the parks of several places there are countless myriads of them.

## ORNAMENTAL DEPARTMENT.

The frost and the continued wet have made *Violets* very scarce out of doors. Even with respect to the single Russian the foliage has suffered much, though the little buds seem plentiful enough and apparently healthy. It is fortunate that we had a lot under glass protection. The Czar is valuable not merely for its large flower, but also for its long footstalk. The grass mice have greatly cut up our Pinks, especially young plants. They pretty well defy everything except fine wire or hair snares, and snaring would be inequivalent work.

Turned over a slight hobbed in which Roses in pots were plunged; the heat had gone, or nearly so, and the turning over, with a barrowload of fresh, rather warm leaves in a light, will give quite as much heat as is wanted. Some strong plants of Cloves, Carnations, and Pinks will be put in the same place. The strongest of these were lifted out of the ground with balls, and potted about six weeks ago, and plunged up to and a little over the rim of the pot in a mild hobbed, with plenty of air to keep the tops cool. Now the pots are crammed with fresh roots, and will bear a little more heat well.

As the result of the severe frost we have suffered only in one thing. In the coldest night, colder by some 1° in the morn-

ing than we expected, a row of Cinerarias, close to the upright glass in front of the conservatory, had their leaves crusted, and some of them had in the morning. Farther back nothing was injured. These stood on an iron shelf or platform—another reason why iron should not be used. The plants were lifted, set down on the path where they would be shaded, were syringed twice with cold water, and on the following morning were placed in their former position unharmed. In a cold frame above an exhausted slight hotbed one light consisted of Cinerarias, and though matted over, they were much injured—so much so that they will only be of use when induced to grow afresh from the bottom like young plants, and as we have plenty more we may not deem it worth while. A little litter over that light would have saved them, as it saved those that were safe. Why it was missed is not easily accounted for. The mat would have saved them in all nights but the one.

Damp has chiefly told on some plants of Pelargoniums, &c., causing a few of the leaves to rot, but not interfering with the shoots or upper leaves. We want a dry day to go over all the plants where placed close together in cold pits. We had set apart this day, the 8th, but it has been such a hurricane of wind, as well as rain, that we were glad to pin down all sashes, doors, &c., to keep the glass safe. All glass roofs glazed with large squares require extra attention. Only get a few squares out in such a day, so as to let the wind fairly in, and then are long you may hold up your hands in unavailing astonishment. We dislike to see bundles of hay, straw, or old clothes stuck in a hole of a greenhouse almost as much as we do to see them filling gaps in cottage windows; but in such a day as this Saturday, any fill-gap would be better than an opening for the wind.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending January 11th.

DATE.	BAROMETER.		THERMOMETER.					
	Max.	Min.	Max.	Min.	1 ft.	2 ft.	Wind.	Rain.
Wed... 5	29.758	29.665	52	35	35	42	S.W.	.69
Thurs... 6	29.771	29.657	52	39	44	42	W.	.05
Fri... 7	29.476	29.262	51	41	41	42	W.	.05
Sat... 8	29.245	29.876	49	39	47	43	S.W.	.10
Sun... 9	29.569	29.292	54	23	45	43	S.W.	.09
Mon... 10	29.917	29.671	46	18	42	42	N.W.	.00
Tues... 11	29.955	29.793	42	29	40	41	S.W.	.04
Mean...	29.662	29.435	49.38	31.14	41.14	42.20		0.53

- 5.—Rain; overcast, very damp; clear and fine.  
6.—Overcast; cloudy but fine; stormy, with rain.  
7.—Clear and fine; cloudy; hoisterous and stormy.  
8.—Boisterous; exceedingly hoisterous; hoisterous and stormy.  
9.—Densely overcast; cloudy but fine; densely overcast.  
10.—Clear and frosty; very fine; clear and very frosty.  
11.—Sharp frost; fine, but overcast; clear and fine.

#### TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

METEOROLOGICAL REPORTS.—We are very much obliged for many that have been sent to us, but must refrain from inserting any. Unless we could devote much space to them they would not be of the service that they would render if communicated to a meteorological journal.

BOOKS (*A Barriard*).—You can have "The Pine Apple Manual" post free from our office if you enclose thirty-two postage stamps with your address. (*R. Rogers*).—If you mean orchard-house gardening, you can have Pearson's "On the Orchard House" post free from our office if you enclose twenty postage stamps with your address. There has been no recent edition of the other work.

SAFFRON TREE (*A Harrier*).—We do not know it by that name.

CONSERVATORY DOOR (*Tyrol*).—The south door will be best for the comfort of the drawing-room.

ZONAL PELARGONIUMS.—A query relative to these was received a few days since and has been solved.

ENGLISH ELMS (*Irish Subscriber*).—The trees are grafted and transplanted, but may be obtained much cheaper than the rate you mention if lot of large size.

INARCHING VINES (*Illustrated*).—Yes, you may do so; but in our experience the *Barbarea* (*Gros Guillaume*) is not well suited for a stock, on account, we suppose, of its intervening habit, which serves as a hindrance to the proper early maturation of the buds. Royal Ascent would suit as well as any.

RENDELS THE PROTECTORS FOR GROWING CUCUMBERS AND MELONS (*Forest Hill*).—The width of 2 feet would not be very suitable for Melon or Cucumber culture, though we have no doubt the protectors might be used to require for these fruits in summer, when no artificial heat would be employed except a little at the commencement. For early fruit a frame and lights would be better, as a hotbed could be made and the frame placed on it.

GENERA CULTURE (*Rh*).—*Geranias exoniensis*, *refulgens*, *cinnabarina*, *Duchesse*, and *zosterifolia* splendens may be had of any of the principal London and provincial nurseries, and probably some of the others named by you. The best time to purchase seeds is in March, at which time they should be potted and placed in a gentle bottom heat of from 75° to 80°. When they begin to grow remove them to a shelf in the stove, or place them near the glass, and keep them in a moist shade, and give supplies of water being given, but avoid making the soil very wet. Slight shade should be afforded from bright sun. Put as required up to August, in the case of sandy fibrous loam one-half, peat one-fourth, and leaf-mould one-fourth, with fine gravel, and admit air freely. When winter-blooming plants should not be started until May, assisting them with a mild bottom heat at the commencement. They should have a temperature of from 60° to 65° at night.

MELON SEED-SOWING (*A Young Gardener*).—The beginning of February is a good time to sow Melons in cold frames for culture in frames. Where a bed of dung can be made it is desirable to have one, and there are times they may be employed for maintaining the proper degree of heat after the heat of the dung-bed is insufficient. The soil must suit the top soil, the bed should have a bottom heat of from 75° to 80° for planting the pots in, and from 70° to 75° for the plants; top heat 65° at night, and from 70° to 75° by day, with a rise from sun heat to 80° or 85°, accompanied with air.

MODEL FOR SEED SOWING (*A J. J.*).—The Mith tree is propagated by seed, and those from Syria purchased at the principal ports. The seeds may be placed now on the smooth bark of the side branches of the Lime, Poplar, Crab, Apple, and Walnut Thorn trees, squeezing the seeds from the berry on the branch, to which they will adhere by the glutinous pulp. They are best put on when the leaves are young, and the seeds are small, and the branch so that the seed may be close to the bark. Some make an incision in the bark in the form of a T, as in budding, and, raising the bark, squeeze the seed into it. The only advantage of the process is, that the seeds are more secure from birds, although the incision is wholly useless; indeed, the seed germinates more freely on the smooth bark than when placed in an incision. For safety it is well to place the seeds on the under sides of the branches.

CLIMBERS FOR A FERNERY (*E. L. J.*).—There are no flowering climbers but will succeed in a warm room, closely shaded during the summer; but for covering such a wall, though not so good, the strain be made of galvanized iron wire and from *Lycopodium scandens* over it. It is a very elegant climbing Fern. The root will also serve for the display of Ferns in baskets.

LOAN TREES (*De Amstel*).—A tree consists of any number of blooms and buds on one flower-stem. Any addition to a tree is better to do so qualify it. Each tree must be exhibited separately from all the others, and no bud, leaf, or flower must be tied or otherwise united with it.

ROSES TO BLOOM IN MARCH (*A Reader*).—We presume the plants have been pruned in May, pruned them, cutting each shoot back to two or three good buds, and then in June, if the temperature from fire heat should be from 35° to 40° at night at first; in a fortnight it may be raised to 45° in another fortnight to 47°, and so on until 55° be reached, and this heat ought not to be exceeded; 50° will be better. On these temperatures an increase of 5° may be allowed on dull days without sun, and of 10° to 20° with sun and abundant clear sky. Sprinkle the plants overhead in the evening and maintain a moist atmosphere, but admit air freely. Water as required, and when the plants are in free growth give weak manure water two or three times a week. The syringing must be discontinued after the flower-buds are ready to open. The plants cannot have too light and airy a position.

TO FLOWER FUCHSIAS IN MAY (*A J. J.*).—Prune the plants in February, and about the end of February or beginning of March place them in a house where there is a temperature of from 45° to 50°. Before doing so, however, the plants should be shaken well of the quality, the strain be removed, and placed in pots sufficiently large to hold them without cramming. Water sparingly at first, increasing the quantity as the plants grow. Syringe morning and evening, maintaining a moist atmosphere. When the plants have about a few inches new, take out the points of these, and early in April transfer the plants to the blooming pots. For flowering the temperature should be from 50° to 55° at night. Admit air freely, and afford a light situation.

SCARLET RUNNER ROOTS (*A J. J.*).—The roots left in the ground will not survive until the winter be unusually mild. Sometimes, however, they will live in sandy soil covered with snow, and in such cases of partially decayed leaves and little, and will push in May. They are best taken up in autumn and stored in dry sand in a cellar secure from frost, and planted at the end of April in the open ground, they will grow, and will produce a fine crop of flowers from seed, and are more dwarf. We consider them best from seed.

SELECT PEARS, APPLES, AND PLUMS (*A J. J.*).—Mild weather during this month and February is a good time to plant fruit trees, but they are best planted as early in autumn as practicable after the leaves fall. Six Pears for pyramidal shape are—Comte de Artois, Comte de Jersey, Alexandre Bon Chretien, Louise Bonne de Jersey, Comte de Lancy, Alexandre Landau, and Bergamotte d'Esperance. Three dessert Apples for standards—Red Astrachan, Blandin, and Pippin, and Count of Wick. Three Plums as standards—Green Gage, Kirke's, and Jefferson.

COMPOUND FOR SPRAYING ROSES (*A J. J.*).—Gishurst and Clarke's compound are both good, but forcible syringers and plentiful supplies of water at the root are often neglected, hence blight.

NOTICE TO QUIT SERVICE (*A J. J.*).—An under-gardener living in a bathy, and paid weekly or monthly, is a weekly servant, and liable to be dismissed at any time with a week's notice or a week's wages. Of course, if there is anything wrong with a man, or if he is a bad character, or infraction of rules, &c., he can have no redress if dismissed at once, and with nothing more than he has earned. 2. The under-gardener who does not lodge on the place has less right to a long notice. An honest man, however, who would not like to part with a notice, without giving him such a lengthened notice as would enable him to look about him. No fault can be found, however, if a week's notice is given on either side. We regret such questions should be put, because service is happier when both parties are of good faith, and the notice is duly, at times young men, and well-behaved ones, too, may be hardly used.



in action during the winter, it is obvious that moisture is entirely withheld, the want of it must be injurious. Vine borders do not require depressing in spring until Vines are in active growth, say the fruit just set; then any good fresh manure will do, which can be washed down to the roots by water. Ground bones are excellent.

**BEST LATE PEAR AS A STANDARD (H. A. B.).**—We believe John Morcan will suit your purpose if the situation is pretty warm and sheltered. If exposed, then we would recommend No. 14, the *Black Pear* sort. We cannot recommend one tradesman in preference to another. Hants strawberries may be procured from any respectable nurseryman.

**UNHEALTHY PEACH TREES (Tear).**—We are inclined to think from the examples of the shoots sent that your trees are greatly wanting in health and vigour, and very feeble growths, which consequently soon become a prey to insects, &c. We would recommend you to prune these weakly shoots back rather hard, and by mulching and watering in summer try to induce more vigour. The fact of the borders being so shallow and resting on a hard surface, suggest to me that the roots are frequently too dry—an excellent condition for the propagation of red spider, the effect of which is seen by the leaves becoming of a whitish appearance and covered with small woolly webs. The insects themselves may also generally be seen on the backs of the leaves. As you say you have tried all sorts of means to cleanse your trees in summer from the green and brown aphid which attack them, we can only recommend further perseverance, which must triumph. Procure some Gishurst compound or Fowler's insecticide, and paint your trees with it now, making it up to the consistency of paint by the addition of some soil; also procure some of Pooley's tobacco powder, and in the spring, when the young leaves appear, dust them over with the powder. Do this while they are wet, so that the powder may adhere; then, after an interval of a few days, wet with clear water, and again if any aphid appear repeat the same operations throughout the summer. By persevering in this way you must overcome them. Dust the powder over every part of the tree. The ants follow the aphides, and come off in troops with respect to your maiden Peach tree, we recommend you not to tend them, but to plant them out in some good ground, and grow them there for one season more. Cut them down to where you can observe buds situated on the main stem, which will most likely be about a foot above the bud. All these side branches or laterals, which are very likely to be of no use for the future formation of the tree; they must be cut back to the lowest bud, and in summer attend to the regular pinching of the young shoots. We can scarcely tell you how to water pot plants. Pots 10 inches in diameter are a very good size, and the most suitable soil, fresh yellow turfy loam with some charcoal or burnt ashes. Put 2 inches of drainage in each pot.

**PREMATURE SHOOTS ON POTATOES (H. T. H.).**—You have what is commonly termed "sprung" the Potatoes without knowing it. They are an early sort, as far as I can judge from the young shoots which are about 2 inches long; therefore let the tubers be carefully handled, and rub off every shoot excepting one, which should be the strongest and the "stocked." This must not be moved in the least, for the slightest touch is almost sufficient to start them. Prematurely forced shoots from an early Kidney Potato. The tubers should then be placed in single layers on boards or a dry floor—say in a loft or out-house quite secure from frost, and where there is a sublimed light. In such a place the cadaverous shoots on the sets will become green, and be pinched firmly to the tubers. After about a month they will be fit for planting in the garden. They have been due to them. If the case were mine I would, a few days before they were planted, take a penknife and scoop out every dormant eye and every eye that had been "sprung," as a forest of young greenery would grow from them, and to produce tubers about the size of marbles, to the inevitable detriment of the fine large fellows around the single shoot, which would require all the room and all the nourishment. —ROBERT FENK.

**EARLY BUTTERFLY (T. M.).**—A small tortoiseshell butterfly on the wing during Christmas Day is, of course, an uncommon early. As it was in your drawing-room, an egg, accidentally introduced, was artificially hatched by the warmth. We know of no one book that will define the meaning of the names of the whole animal kingdom.

**Figs (—).**—We shall soon publish some notes on this fruit.

**BEARD'S WALL TREE SCREENS (A Reader).**—You can obtain them at Mr. Beard's, Victoria Road, York St. Edmunds.

**DESSERT FRUIT TREES ON TRELLISING (Dorset).**—Apple: Kerry Pippin, Summer Parnam, Yellow Ingestre, Court of Weymouth, Russet, Wyken Pippin. Pear: Jargonelle, Beurre d'Amis, Louise Bonne de Jersey, Red Doyenne, Thompson's, Knight's Marquis, Flaming Green Gage, Pile Gage, Jefferson, Cox's Golden Drop, Elsie Claude de Bayre, Late Rivers.

**DESTROYING RATS (E. D. C.).**—The rats will do great injury to the roots by their burrowing in the border, making it loose, and forming passages. They will also devour every root they come across. The rats are undoubtedly attracted by the food given, and perhaps wasted by the supply being too great for the rats, making it difficult to take poison, unless it be mixed with something from which it cannot be known. Lay down a good supply of oatmeal mixed with a little melted lard, to make it rather lumpy, and continue to place this mixture every night for three or four nights; this will attract the rats, and on the next night, and the next night mix equal quantities of oatmeal and arsenic, making it rather lumpy as before, by mixing it with some melted lard; this put where the meals had been before will be greedily eaten up by the rats. Remove what remains of the poison in the morning, and if you wish any remaining rats to take poison eat them with sweet food for a few nights.

**ORNAMENTAL AND FLOWERING SHRUBS AND PERENNIALS (J. B.).**—In Vols. XIV. and XV. New Series, are extensive lists of all the best shrubs, with brief descriptions, and some notes on cultivation; and articles on their arrangement and planting will be found in the latter volume. Herbaceous and alpine plants have been fully treated in former volumes. We quite agree with your view on the subject, that they are deserving of more extended cultivation, and nothing would conduce so much to that end as narrators giving their experiences of the plants cultivated, with descriptions, bright, true of flowering, continuance of bloom, soil, and particulars of cultivation.

**PIES, PLANTS, AND CUTTINGS OF THE WILD EGGING CRAB (F. Cross).**—The *Hollyhock*, which is, wishes to have these for some friends in Aus-

tralia; if any of our readers can supply him they will oblige by writing to him. Cuttings taken off now and despatched at once, packed in powdered charcoal in a hermetically closed tin case, enclosed in a wooden box, will travel to Australia quite safely. This is the mode adopted by the Royal Horticultural Society, which has sent out many hundreds of cuttings, as noticed in our pages a week ago.

**Various (Amateur).** 1. *Fines*.—If you mean to confine the roots of the Vines entirely within the space 3 feet in width, it will in some degree resemble a big flower pot, and must be treated accordingly. The Vine will, of course, require more water, and if this be not given the plant will not reap the benefit. If it is merely a holding out and so much fresh soil put in, it will be able to raise it a little above the surrounding level, as the roots will soon ramble down and away. 2. *The Peach Trees* themselves would derive no benefit from being untied at this season. It is done sometimes to all of a better exposure to the weather, in order to cleanse them from all insects, &c., and sometimes to retard their flowering in spring, so as to avoid the danger of late spring frosts. 3. *Miniature Apple Trees*.—Fresh bones are usually applied as fertilisers to give vigour—quite the opposite of what is required for the cultivation of miniature Apple trees.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### EXHIBITION PENS.

THE correspondents who have sent you accounts of the recent shows have on several occasions dwelt on the pens provided for the accommodation of the birds, and the thanks of all poultry fanciers are due to them for directing attention to what really is a very important point. I remember in particular that in your account of the Dorking Show it was stated that the pens were large and good in every way, a statement which interested me, because I happened to have sent one or two pens to that nursing mother of our great English breed. When my birds returned, I found that their feathers were in no wise injured, so that they were ready, if required, to go elsewhere before long. At Aylesbury, on the other hand, the case was very different. The pens had wire backs as well as wire fronts; I had therefore an opportunity of seeing a bird of mine which happened to be among the winners, "backing" every few minutes whenever anyone came to inspect him, and running his tail feathers into the wire. When he returned, of course his plumage was so injured that he could not be shown for some time. I do not know what pens they had at Whitehaven, but I find that a bird which I sent to that Show has returned with his tail feathers more injured by this one visit than by two or three trips elsewhere. For one should be glad if committees would state in their programmes what pens they propose to use, as I certainly should not send to a show where the pens had wire behind as well as in front.

Can any experienced exhibitor inform me what should be done when the tail feathers, or any of them are broken? Should they be pulled out? If so, how long is it before they grow again? And does it ever, or often, happen that black feathers become white?—E. M. L. A.

### BLACK GAME.

LIKE your correspondent, "Y. D. A. Z.," may I be permitted through your Journal to advocate the claims of another neglected class of fowls? Why is it that the Black Game are not more encouraged at the principal shows? Birmingham, as in the case of the Malays, is the only place that offers them a refuge. Many of the leading shows give classes for Black Reds, Brown Reds, and Duckwings, and in those cases the Piles are their chief opponents in the "Any other variety" class, but even then the Blacks are nowhere. They do not deserve to be such outcasts. Can the Piles be so much their superior that they should always carry off the palm? It cannot be their fineness for table. From my own experience as a breeder of Black Game for several years, I can testify to their excellence on that score, both for flavour and quickly-acquired weight.

I speak on behalf of the breeders and admirers of Black Game, who are far more numerous than is generally supposed; and I feel certain if some of the leading shows would follow the example of Birmingham and open a class for them, the funds would not suffer, and they would do everything for a most deserving class of fowls.

I quite think with "Y. D. A. Z.," that every known breed of fowls should, if possible, be represented at all the large shows.

—W. G. W.

### A CAUTION

To parties having poultry, Pigeons, dogs, &c., for sale. Having lately been victimised by different parties writing to me

for dogs, fowls, &c., promising to pay back carriage in the event of their not suiting. I think it only my duty to caution the public against the following places:—Whitehaven, Bristol, Nottingham, Hull, Kingsland, London; and Shields. In each case they give a reference, and promise to pay back carriage if not approved of; but in each case they have nothing to say against the article sent until applied to for payment. They have then in each case sent them back carriage unpaid, and in a wretched condition. I write this to caution the public against sending anything until they have received a post-office order for the amount. In each instance when I have stated the case to the parties referred to for reference, they say, "Well, I could not believe they would have acted in such a manner."—  
A VICTIM.

[In every case a post-office order payable ten days after date should be pre-forwarded. Both parties are then secure. Manchester again may be added to the list given by our correspondent. Another correspondent, despite our repeated warnings, sent money for Newfoundland pupae which were never sent. We would add that naming referees is not to be depended upon unless the referees are applied to. Let no one be thrown off their guard by such references. We have been named as referees by intending cheats of whom we knew nothing.—Eps.]

## BRISTOL POULTRY SHOW.

It is well known to everyone who has seen it that the Drill Hall at Clifton is one of the buildings best suited in the whole kingdom for a poultry show, and as most of the Managing Committee have had long experience in poultry, perhaps few shows can boast of the elements needful to succeed more than Bristol can. Considering the large number of shows that take place about this season, and as 1870 in this respect promises to outvie all previous years, it is highly satisfactory to find an entry of 1100 pens, which have rarely been surpassed in general quality, as the greater portion of those pens exhibited had been successful prize-winners at previous meetings. We noticed, however, particularly that not a few of the very best pens showed a decided tendency to be "overdone," and this is especially the case with the police, for owners interested in breeding early chickens from their best fowls, to thus tax their physical powers to such an extent, and the result as to money can only be disappointment.

All the classes for *Dorking* fowls were well filled, but the want of condition, from repeated competition, in many naturally superior birds was painfully evident. The White *Dorkings* did not show so well as at some previous Bristol shows. *Cochins* were ungenerously goold, for they constituted a perfect exhibition in themselves. Partridge coloured were such as any amateur must admire, and the White, though not so numerous as might have been expected, were of first quality. *Trabawes* were some of the heaviest classes in the Bristol Show, and might have been more numerous, the bulk of them being sadly out of condition; abundant awards were made by the Dark-feathered, for rarely, if ever, has there been a closer competition. In *Spanish* fowls the Bristol Show of this year was not by any means behind its predecessors, the condition of most of those exhibited being really faultless, though the trimming of faces, even to an excess was a matter to be regretted. In some pens every particle of feather between the comb and the eye had been purposely extracted, leaving the eye small, and any tendency to the reverse of an naturally perfect, a failing that, though admitted their position in the exhibition was not of excellent quality, and formed strong classes, but, unfortunately, here again trimming was resorted to, but unsuccessfully. *Game* were well worthy of note, the pens shown by Messrs. Fletcher and Mathew being, in colour, of the truest feather, and the plumage as perfect as to condition as possible. *Pollish* were remarkably good, and as these fowls are always especial favourites they constituted one of the most admired features of the Show. We do not remember to have seen a better lot of *Game* and *Pollish* than were shown at this year's Show, throughout were far better than customary. The absence of diseased birds of any kind was a subject of general remark, and the attention shown to the birds throughout was perfect.

DORRINGS (Colonel) Cock—1, 2, and Cap. J. Martin. 3. W. Dearlake.  
H. W. Tippler, Duke's Row, Old Chelmsford; Hon. H. W. Fitzwilliam, Went-  
worth Woodhouse; W. Harvey, Sheffield. *Cockers*—1, 2, and L. Patton.  
Hurre, Thaxted; B. Sanniers, Tipton; J. Martin, Gaines, Norwood.  
A. Potts, Croydon Hall, Chichester; A. Johnson, Exeter.  
*Hens*—1, 2, and L. Patton. 3. J. White, Warley.  
L. Lieut.-Col. Lane, Bracknell. 4. Mrs. M. Seadoms, Aylesbury; W. Harvey,  
Exeter; A. Johnson, Exeter.  
Crowsley; L. Patton; H. Linwood, Barking, Needham Market; A. Potts,  
Mrs. Hart, Alderwasley; Rev. A. K. Cornwall, Bencombe, Dursley; M.

Hillyer, S.G. Kassel, Kingdon, L. Patton; J. Martin  
Hobbs, W. H. B. Hens or Pullets—1 and 2.  
E. Cressell, Harcourt, O.F. E. Cressell, *Hens or Pullets*,—1. J. Robinson,  
W.E. Gorge, Stoke Bishop, J. S. Lowmays, Aylesbury.  
DORRINGS (White)—*Cock or Cockerel*.—J. I. Robinson, Garstang, 2 Miss M.  
Barthart, Ormskirk, O.F. E. Cressell, *Hens or Pullets*,—1. J. Robinson,  
O.F. E. Cressell, *Hens or Pullets*,—1.  
COCHRANS (Cinnamon and Buff).—*Cock*.—1. Mrs. R. White, Sheffield, 2 Mrs. M.  
Mapplebeck, 3 J. Siebel, Ac, J. Siebel, J. Poole. *Cockerel*.—1 and Cup. Mrs.  
Burrell, Stoke Park, Ipswich, 2 W.A. Taylor, Manchester, 3 H. Mapplebeck,  
Manchester, 4 J. Siebel, Ac, 5 W.A. Taylor, Manchester, 6 H. Mapplebeck,  
Halslop, Hindlip Hall. *Hens*.—1 H. Mapplebeck, 2 W.A. Taylor, 3 H. Ling-  
wood, 4 J. Cattell, 5 W.A. Burrell, Southwell; 7 H. Mapplebeck, c, Mrs

Burrell. *Pullets*.—1, H. Mapplebeck. 2, Mrs. Woodcock. 3, W. A. Taylor. *h.c.*, A. Darby, Bridgenorth; H. Mapplebeck; Rev. C. Spencer, Attleborough. *c.*, G. Heath; Miss J. Milward, Newton St. Loe; J. Cattell, Birmingham; J. H. Dawes, Birmingham; J. Sichel, Timperley.

COCHINS (Brown and Partridge).—*Cock*.—1 and *Cup*, H. Crossley, Halifax. 2, J. White. 3, E. Tudman. *hc*, J. K. Fowler, Aylesbury; H. Lane; Mrs. R. White; T. Stretch. *Cockerel*.—1, T. Stretch. 2, C. Sidwick. 3, W. A. Taylor. *hc*, G. Lamb, Compton; E. Tudman, Whitechurch; W. A. Taylor. *c*, J. K. Fowler. *Hens*.—1 and *Cup*, H. Crossley. 2, W. A. Taylor. 3, H. Lingwood. *Cresting*. *hc*, J. R. E. Rodbard, Wington. *Fullets*.—1, T. Stretch. 2, W. A. Taylor. 3, E. Tudman. *hc*, J. H. Dawes. *c*, J. H. Dawes; G. Mail, Kendal.

Coccyzus (White).—*Cock*.—1, R. Smalley. 2, F. Brewer, Lostwithiel. 3, E. C. Boville, Wellington, Burton-on-Trent. *Cockerel*.—1, A. J. E. Swindell, Heath, land, Kuiper. 2, R. Chase, Wyde Green, Sutton Coldfield. 3, R. Brown, Cheadle Hulme. *hc*, S. Felgate, Ipswich. *Hens*.—1, R. Smalley. 2, J. Sichel. 3, G. Shrimpton. *hc*, A. O. Worthington. *Pullets*.—1, Mrs. A. Williams, Queenborough Hall. 2, G. Shrimpton, Leighton Buzzard. 3, R. Smalley. *hc*, G. Shrimpton; R. Chase.

[illegible]

BEARMAN (Light).—Cock.—1 and Cup, A. O. Worthington. 2, Mrs. Williamson. 3, H. M. Maynard, Holmewood, Isle of Wight. *hc*, J. Parea, Postford, Guildford. *Cockerel*.—1, H. M. Maynard. 2, Mrs. A. Williamson. 3, J. Parea. *Hens*.—1 and Cup, F. Crook, Forest Hill. 2, A. O. Worthington. 3, H. Dowsett, Pleshey. *hc*, H. M. Maynard. *Pullets*.—1, F. Crook. 2, Mrs. A. Williamson. 3, C. F. Wilson, Bartley Manor, Totton. *hc*, H. M. Maynard; M. Leno, Markyate Street. *c*, H. M. Maynard.

SPANISH—Cock—Miss Hyde. 2, J. H. Dawce. 3, Hon. Miss D. Pennant.  
 Cockerel—1 and Cap. H. Lane, Bristol. 2, E. Jones. 3, H. Beldon. *bc*, H.  
 Lane. J. Barry, Totterdown; E. Jones; S. Healing; Rev. E. Lascelles, Newton  
 St. Loe. *c*, E. Jones, Clifton; T. Bamfield, Bristol. *Hens*—1, Hon. Miss D.  
 Pennant. 2, T. Bamfield. 3, Miss Hyde. *hc*, E. Jones; H. Lane. *Pullets*—  
 1 and Cap. Mrs. Hyde, Westminster. 2, Hon. Miss D. Pennant. 3, H. Lane.  
*hc*, E. Jones; T. Bamfield; Rev. E. Lascelles. *c*, H. Lane; Hon. Miss D.  
 Pennant.

2. *FRENCH FOWLS.—(a) Cockerel*.—1, W. B. Park, Melrose (Crevé-Cœur); 2, R. B. Wood, Fitzwilliam (La Fleche); 3, F. E. Wood (Houdan); *he, H.* Wyndham, Warne (Crevé-Cœur); *Hon. C.* W. Fitzwilliam; W. Blunkhorn (Crevé-Cœur); W. Harvey, C. G. A. Stephens, Dublin (La Fleche); *Hon. W. H.* Fitzwilliam (Crevé-Cœur); J. G. Ross (Crevé-Cœur). *(Bens or Pullets)*.—1, W. B. Park; 2, G. A. Stephens (La Fleche); 3, Hill & Co. *he, H.* Wyndham (Crevé-Cœur); *Hon. C.* W. Fitzwilliam (La Fleche); J. G. Ross, Bathampton (Crevé-Cœur); R. B. Wood, Fitztetter; J. J. Mahon (Crevé-Cœur). (Houdan).

2. Mrs. J. Pattison, Dorchester (Houlton).  
 HAMBURG (Gold-spangled).—*Cuck or Cocker l.*—1 and Cup, W. A. Hedy. 2. T. Scholes, Hollinwood. 3. Miss C. E. Palmer, Warwick. *hc*, W. Blinkhorn;  
 T. Walker, jun., Denton. 4. W. A. Hyde; H. Beblon, Goitstock. 2. Scholes;  
 I. Pickles, jun., Earby. Skipton. *c*, J. Walker. *Hens or Pullets*.—1 and Cup,  
 H. Beblon. 2. W. A. Hyde. 3. W. Blinkhorn. *hc*, W. A. Hyde; J. Newton; T.  
 Walker, jun. *c*, W. de Winton, Durham Down.

Wicker, jun. c. W. Wood, Edgware, Middlesex.  
 Hamblers (Silver-spangled).—*Cock of Cuckers*.—1, Miss E. Browne, 2, Mrs. J. Paterson. 3, H. Fickles, jun. *hc.* D. Lord, Staekstead; W. A. Taylor; J. Arnold, jun. Mossley, c. H. Beldon. *Hens or Pullets*.—1, D. Lord, 2, Miss E. Arnold, 3, D. Lord. *hc.* Miss E. Browne, Chardleigh Green; H. Beldon; J. Arnold, jun.

HAMBURGS (Gold-pencilled) — *Cock or Cockerel*.—1 and Cup, E. Bee, Good-  
lough. 2, J. Smith. 3, E. Beldon. *he*, W. R. Park; J. Walker. *Hens or*  
*Pullets*.—1 and Cup, J. Walker. 2, W. Parr, Patricroft. 3, W. R. Park. *c. H.*  
Beldon.

HAMBURGH (Silver-pencilled).—Cock or Cockerel,—1, H. Pickles, jun. 2, J. Walker, 3, Duke of Sutherland, Trentham. Hens or Pullets,—1, J. Walker, 2, H. Pickles, jun. 3, H. Beldon.

Hampton's Black. — *Cock or Cockerel*.—1 and Cup, Rev. W. Serjeantson, Icton Burnell. 2, D. Lord. 3, W. McMellon, Glossop. *he*. S. Butterfield, Keighley; C. Sidgwick, Keighley; J. M. Kilvert, Ludlow; C. F. Copeman, Birmingham; T. Walker, jun. *Hens or Pullets*.—1 and Cup, T. Walker, jun.

Mason & Walker. 3. W. McMellon. *hc.* J. M. Kilvert; Rev. W. Serjeantson; Sidgwick; M. Rake. Bristol. c. D. Lord; H. Beldon.

**GAME** (Blackbreasted and other Reds).—*Cock or Cockerel*.—I and Cup, S.

James Black-bread and Peter the  
Watney, Stowmarket. 2. J. Andrews, Worcester. 3. J. Fletcher, Stoneclough.  
4. W. Boyes, Beverley; G. Thomas, Bristol; T. Burgess, Whitchurch; J.  
Gosyth; J. Frith, Chatsworth. 5. G. E. P. Ach, Wollington, Salop. *Hens or*  
*Gullets*—1 and Cup, Miss F. A. Crawford, Farnsfield. 2. S. Matthews, Stow-

market. 2. J. Forsyth. *hc.* W. H. Stagg, Netheravon; J. Fletcher; W. J. Pope, Biggleswade; W. Boulton, Dalton-in-Furness (Brown Red); F. Palmer, Bristol; W. Boulton (Brown Red); H. Helyar, Pyndover Rectory; T. Mason, W. Jones, Malpas; T. Whittaker, Melton Mowbray; Capt. G. Price, Taun-

on; B. Consterdine, Littleborough; J. Jukes, Flham. c, J. Fletcher.  
GAME (Duckwings and other Greys and Blues).—*Cock or Cocker*.—1. H.  
oe (Duckwing). 2. S. Matthew. 3. W. Boyce. 4c, J. Fletcher (Duckwing); N.  
arton, Cady Manor (Duckwing). c, J. Frith (Duckwing). *Hant or Pullet*.—

J. E. Robinson (Duckwing). 2, D. Vonnag. 3, S. Ashworth. 6, J. Fletcher (Duckwing); N. Barter, Plymouth; G. S. Sainsbury, Berizes.  
GAMT (Any other variety)—Cock or Cockerel.—1, T. West (Pile). 2, H. C. and V. J. Mason, Drighlington (Pile). 3, Rev. G. S. Crawley, *hc*, S. Matthew; W. Thompson, *thurs*, or *Pullets*—1, T.

Key. G. S. Crawley, Doverdon. c, J. W. Thompson. *Hens or Pullets*.—1, 1. Vest (Pile). 2, J. Frith (Pile). 3, M. B. Jarvis, Mansfield. *he*, J. Tiley, Staple-  
ton, Bristol (Black); H. C. & W. J. Mason (P le).  
POLISH (Any variety).—*Cock or Cockerel*.—1 and Cup, W. Gamon, Chester.  
—*Hen or Pullet*.—1, J. B. Holden. *he*, J. Hinton, War-

M. Nicholls, Feol, Isle of Man (Golden). 3, H. Bennet, *W. J. Hinton* (Wad-  
 nister (Silver); W. Silvester, Sheffield (Silver); T. P. Edwards, Lyndhurst,  
*or Pulten*,—1 and Cap. J. Hinton (Silver). 2, Mrs. J. M. Procter. 3, W.  
 Harvey. *W. T. P. Edwards*; W. Silvester; H. Eddon.  
*Anderson*, *De la Rue*, *Plavsky* (*Chock or Cuckler*),—1, E. Joff, Woodmansey

ANY OTHER DISTINGUISHED VARIETY.—Cock or Pouter;—R. Ford (Worcester);  
Sultans, 2. A. D. Payne (Malay); 3. H. J. Godfrey (Black Cochins), *he*, Rev.  
G. S. Frooke, Rayton XI Towns (Malay); S. H. Stott, Rochdale; T. Hollis, Read-  
ing; J. Watts, Birmingham; J. H. Amory, *c.* Mrs. Wilkin (Padua); M.  
Jukes (Japanese) *Hens or Pullets*.—J. H. Ewrell (Shillings). 2. J. Watts,

R. Luft, *bc*, Mrs. S. Browne (Black Minorcas); Mrs. Wilkin, Bootle (Padue hamois); C. F. Montresor, Stoke House, Slough (Indian Game); C. J. W. Brown (Black Minorcas); J. E. Amory; T. Hollis; J. Hinton (Malay). GIANT BANTAMS (Black-breasted and other Red-1, E. Brownlie, Kirkcaldy

VARI. BANTANS (Many crested and crested)  
 J. Cushing, jun., A. J. E. Robinson, Jr., J. Mayo, Gloucester; E. Payne,  
 Ardif; W. F. Entwisle, Cleckheaton; J. W. Morris; J. Frith, c, B. C. Green-  
 ill, Bridgewater; Miss E. S. Cornwall.  
 GAME BANTANS (Any other variety)—1 and Cup, Mason & Charlesworth.

W. Adams (Duckwing), 3. J. W. Gates, *hc*, W. F. Entwistle; Miss E. A. Crawford, *c*, J. Crosland, jun., Wakefield (Duckwing); H. Loe (Pile).  
BANTAMS (Gold and Silver Sebrights)—1, Cup, and 3, M. Leno, 2, Rev. G. S. Entwistle, *hc*, T. C. Harrison, Hull; B. C. Greenhill.

BANTARS (Black Clean-legged).—1. E. Cambridge. 2. J. Walker. 3. S. & R. Shotton, Mottram. 4. H. M. Maynard; S. S. Mossop, Long Sutton. 5. T. C. Harrison; E. Cambridge, Cotham.





L. A. Hope, 2. J. Spence, 3. J. F. Lovelidge, 4. S. McGill, Edinburgh. TERRIBLES—1. W. Gill, Musselburgh, 2. J. Bruce, 3. S. McGill, Edinburgh. NESS, 1. R. H. Hodge, Kirkcaldy, 2. R. Patterson, Midshire, 3. W. R. Park, Ayr. OTHER VARIETIES—1. J. Bruce, 2. M. Sanderson (Barle), 3. R. W. Park, Hadd, 4. J. Spence (Jardine), 5. J. Lockhart (Kirkcaldy) (Bodley), 6. Porter Cock—Cap. A. Winton, 7. M. Sanderson, 8. J. Torrence, Edinburgh. CAMEL COCK—Cap. J. McGill.

CASARES—Scott. Plover, Yellow Cocks—1. G. Dinne, Perth, 2. J. Rutherford, Alha, 3. W. Muirhead, Jun. Alha, Buff Cocks—1. W. Gilmore, Alha, 2. W. Muirhead, Jun. Alha, 3. Sim, Grabinston. Yellow Hen—1. J. Sim, 2. J. McGill, 3. R. H. Hodge, 4. Buff Hen—1. G. Dinne, 2. J. Rutherford, 3. D. Duncan, Carron, Delphinus (Fancy)—Buff Cocks—1. J. Hay, Dunfermline, 2. R. Stuart, St. Andrews, 3. J. Elliot, Cowdenath. Yellow Hens—1. E. Arn, Johnstone, 2. T. Sider, Burnbank, 3. Kemp, Dalrymple, Buff Hens—1. and 2. J. Kemp, Yellow-Flushed Cocks—1. R. Arn, 2. J. Kemp, 3. D. Slicht, Buff-Flushed Cocks—1. G. Adams, Musselburgh, 2. J. Rutherford, Alha, 3. Rutherford, Buff-Flushed Hens—1. D. Duncan, 2. J. Rutherford, 3. D. Mitchell, Goldencrest Mells (Yellow)—1. and 2. Master D. Laing, 3. J. Frank, Dundee, Buff—1. Master D. Laing, 2. and 3. W. Kirk.

JUDGES.—Pouter: Mr. R. Teebay, Falwood, Preston. Pigeons: Mr. J. H. Frame, Overton, Carlisle. Cuckoo: Mr. G. Creig, Edinburgh; and Mr. J. Mitchell, Perth.

## LEEK ORNITHOLOGICAL SOCIETY'S SHOW.

THE third annual Exhibition of Game Birds, Poultry, and Rabbits took place in the Temperance Hall, Leek, on December 29th. The Committee made choice of a very happy time for holding their Show, it being the annual fair day, on which particular occasion many Staffordshire lairs and houses assemble for the purpose of "hiring" for the future twelve months. In consequence of this influx into the town many delighted themselves with a visit to the Show room. There were several pens of Game Fowls exhibited, and the first honours were gained with a pen of Black-breasted Reds, belonging to Mr. C. Heath. Mr. W. Carter took a first prize with a pen of Black Spanish, and Mr. V. Poole took the first prize with a pen of Black Red Game Bantams. For a pen of Bantams, irrespective of breed, Mr. Wm. Tippler won the first prize.

The Rabbits exhibited were good, and numbered about a dozen entries. The prize for the Rabbit having the greatest number of points was won by Mr. W. Hall, and the heaviest Rabbit belonging to Mr. Charles Keats gained first honours.

The following are the prizes awarded to the Game Birds:—

CASARES.—Delphinus (Clear Yellow)—1. J. Austin, 2. H. Austin, 3. J. Yates, Delphinus (Clear Buff)—1. and 2. J. Yates, Leedon (Golden-paned)—1. J. Yates, Leedon (Clear Buff)—1. and 2. J. Austin, 3. J. Austin, 4. J. Austin, Crested—1. J. Austin, 2. H. Austin, 3. J. Yates, North (Clear Yellow)—1. J. Yates, 2. H. Austin, 3. W. Carter, 4. J. Hassell, 5. North (Clear Buff)—1. J. Yates, 2. J. Austin, 3. J. Yates, 4. H. Austin, 5. North (Crested Buff)—1. J. Yates, 2. J. Hassell, 3. North (Variegated Yellow)—1. J. Hassell, 2. W. Carter, 3. North (Variegated Buff)—1. J. Austin, 2. W. Carter, 3. J. Austin, 4. H. Austin, 5. Goldfinch (Clear Yellow)—1. J. Yates, 2. J. Austin, 3. S. Gaddings, Goldfinch—1. S. Gaddings.

JUDGE.—Mr. Geo. J. Barnesby, Derby.

## THE GLASGOW PIGEON SHOW (NORTH BRITISH COLUMBIAN SOCIETY'S).

(Continued from page 19.)

### THE POUTER CLASSES.—Continued.

HAVING in our last reviewed the Blue Pied and Black Pied Pouters, we now claim attention for the Yellow Pied classes. Not many years ago Yellow Pied cocks were very scarce; but the attention bestowed on this colour is now so fully rewarded that they may compete on level terms with any of the standard varieties. In a class of more than average merit, Mr. Montgomery took first prize, and also a high commendation with a splendidly hog-backed bird—a fault always to be sedulously avoided, for no more disastrous defect can befall a Pouter. His unnoted bird was very luxuriant in flesh, and had figured prominently in last year's prize list. Mr. Ruthven, the indefatigable Secretary, succeeded as second. And why may not secretaries in the hands of honourable judges compete for prizes? To Mr. Ruthven on this occasion is due the credit of showing the best-coloured bird in the class; a bird, too, in other respects comparing favourably with several of its competitors. The depth and metallic lustre of the colour were especially apparent in the hackle; the markings were good, excepting a faint feather top and a small black on the back, but the back was, perhaps, open to the exception, in common with several birds in this year's Show, of being a trifle short in the lower joint. It is refreshing to notice that a gentleman who, in the late plumage controversy rather sided with the non-plumage breeders, is himself coming to the front with notable colour and markings. Mr. Volkman claimed the third prize with a bird of extraordinary size and crop, but doing its properties no justice, being so terribly out of show. Like many large-cropped birds, he seemed too lazy to display himself, but stood stolidly on his block, with proud crop and a small feather till the last few hours of the Exhibition. His very stout stocking-footed hanks, if somewhat short, are so well set and proportioned as to harmonise completely with his great size, and they carry his huge crop when fully inflated to advantage.

Mr. Rose was so fortunate as to take the second prize in the young cock class with a hen—a thick coarse bird, gay in crop and weak in colour, but so far meritorious as succeeding against cocks. By far

the best young cock in an otherwise meagre class was No. 83, shown by Mr. Ure—a very taking bird of extremely erect carriage, compact form, grooved back, and neat girth, with hanks of the right class, stocking-footed and nicely set, but somewhat short for his length of feather; in colour fair, and blushing good, but with a crop of inferior size and not starting sufficiently sharply from the breast.

Several Yellow Hens might be singled out for description; but, briefly, the honours were allotted to Messrs. Montgomery, Volkman, M. Stuart, Wallace, and Ure. Mr. Ure's first-prize young class bird (No. 89), we think, will prove to be a cock; but by way of compensation his excellent and almost faultless specimen, No. 337 or 338, was not noticed.

Some unaccountable mistake must have occurred in the judgment of the old class, Mr. Montgomery's comparatively inferior bird, No. 327, taking not only first prize, but the medal for the best hen in the Show. Thick-shouldered, hull-eyed, washy in colour, gay in crop, this bird was beaten by several in its own class, to say nothing of the many immeasurably superior hens throughout the Hall. We imagine that it was placed first quite by oversight or accident, and then on the old-fashioned notion, that all other things being equal, a Yellow, because of its scarcity, is the superior bird, it was allotted the medal without its security. But colour is a relative question, being influenced by fashion, supply, and demand. Yellow for the time has ceased to be scarce, and all things being equal, a Red or a Black would be entitled to the pre-eminence; Red in particular standing much in need of revival, not merely for its own sake, but as a means of further improvement to the Yellow strains.

(To be continued.)

## THE HIMALAYAN RABBIT.

I do not set much store by Mr. Hudson's conclusion (see page 535 of last volume) that his Indian friend was talking of Himalayan Rabbits; certainly there is nothing to justify it in what he has published in his letter. And as to his Shanghai authority, even if specimens were brought thence and identified with ours, they would only show that the breed existed there also, not that it was originally wild or indigenous. Truly wild it cannot be, for as far as I know there is no wild albino race of any animal, and the red eyes of this Rabbit show that it is a true, though imperfect albino, and it may possibly have been imported from England and become feral. However, I know well how little reliance is to be placed upon the evidence of the great majority of persons upon the similarity of breed; and with the highly respectable family of the "No Eyes" any slightly pied white Rabbit would be "just the same kind of Rabbit as yours, you know." I should be glad if Mr. Hudson could procure a skin of one of these Shanghai Rabbits. I suspect it will turn out to be no Himalayan; and even if the breeds be the same, their independent existence in China and England cannot disprove the fact that they are originally a cross between Chinchilla and Silver-Grey, as has been proved by experiment here.—DUCKWING.

## DR. PREUSS ON FOUL BROOD AND INFECTION.

(Continued from Vol. XVII., page 537.)

AFTER the foregoing brief remarks on the natural history of the most minute forms of fungus, we come to the important question, *How can their operations be arrested when they become mischievous?*

It has been proved by the most careful investigations that at the boiling point, 100° C. (212° F.), every fungus becomes incapable of budding or of propagating itself, and that it is indeed effectually killed. This fact is already well known and acted upon in household economy. In order to preserve vegetables, fruits, &c., we first cook them, and thus destroy everything like fungus-cells which may exist either in or near them. If the vessels containing them are now hermetically sealed, no new fungoid elements can enter, and the preserves are safe against fermentation and mildew.

Hallier cites the following experiment, which proves irrefragably that fermentation is conditional upon the presence of fungoid elements. He boils a solution of sugar with the addition of some nitrogenous substance and pours it into two flasks. To the first nothing is added, to the second some fungoid elements only, and both bottles are hermetically closed. The first bottle remains perfectly clear, the second thickens, and fermentive fungus forms in and on the fluid, whilst the sugar becomes decomposed. Thus it is seen that the fungoid elements immediately commenced the process of reproduction in the second flask, which by their absence was rendered impossible in the first.

Alcohol operates destructively on these lower forms of vegetation by depriving them of water. Animal or vegetable substances are, therefore, protected from the effects of fungi by being immersed in alcohol.

Lastly, there are many ways, which will be described further on, in which these low fungoid forms may be destroyed, and which will in this manner check every process of fermentation and all putridity arising from it.

Relying on these experiments and investigations, the theory of foul brood may be briefly stated as follows:—

*Foul brood* is the death and putrefaction of sealed and unsealed brood. We distinguish the infections from the non-infections form.

With *non-infectious foul brood* the bees die in the larval stage: they remain unsealed and dry up to a grey crust, which is tolerably easy of removal. This kind arises generally from the brood becoming chilled in cold weather, when the bees shrink together and leave the outer combs uncovered.

*Infectious and virulent foul brood* first kills the bees when in the nymphoid stage, although, undoubtedly, they are diseased earlier. The sealed chrysalis changes after a time into a brown paste or yeast like substance. The cell-cover sinks and shows generally a minute perforation. It is probable that this small hole is formed by escaping gases, which break through the cover at this place because it is here last closed, and this is, therefore, the weakest spot. We may readily satisfy ourselves that gases are developed in the cells during the fermentative or putrefactive process by keeping foul-broody combs by us for some time. Taken fresh from the hive the cells appear filled with matter; after some days we find this either sunk to the bottom or covering only one side of the cells, which appear nearly empty. The foul-broody matter dries at last to a black crust, which rests on the sides of the cells and falls eventually to the ground.

*The Nature of Foul Brood.*—Infectious foul brood does not consist of ordinary putrefaction\*, but is conditional upon the presence of the smallest fungoid forms in billionfold numbers. These belong to the primary types of fungus, Micrococcus and Cryptococcus, which are related to each other. These fungi increase by division and by gemmation or budding to an immeasurable extent, and are destructive by their wonderful power of multiplication. They transform the nitrogenous body of the larva into themselves, consume it, and at last take its place.

The infectious character of the disease rests simply and entirely upon the transmission of these forms of fungus to other hives.

Whether foul brood is or is not virulent and infections is proved by inoculating experiments:—

I extracted foul-broody matter from the cells with a little horn spatula, and put it into a small medicine phial filled with distilled water. After shaking the bottle until the matter was dissolved, I corked it and stood it upside down. In a few days the Micrococcus cells, which are heavier than water, sank to the bottom. I now loosened the cork and let a little of the liquor, which I had examined under the microscope and found to contain masses of Micrococci, flow into a small vessel which had been repeatedly washed with distilled water. I then took from a Dzierzon hive a comb containing young larvae, marked with four pins a space comprising twenty-five cells, and with a fine hair-pencil put into each cell a portion of the liquid containing the fungus. The larvae developed and changed into chrysalides, eighteen of which became foul-broody, whilst in seven the incubating matter proved powerless, and healthy bees hatched out. This experiment can easily be repeated.

The Micrococcus and Cryptococcus which produce foul brood spring from higher and probably different mildew blights and fungoid organisations, which are not as yet clearly identified.

The various causes of foul brood which have been stated by different writers, and which are for the most part undoubtedly well-founded, are by these microscopically-proved facts reduced

to a single first cause. Let us examine their statements somewhat more closely.

Honey which has become fermented, especially the American and Polish cask-honey, is with one consent named by all writers as the chief cause of foul brood. In the harvesting of all these inferior products it is well known that the brood is not carefully separated from the honey, and consequently a nitrogenous substance is added to it, additional moisture is speedily imbibed, and thus is the fermentation process at once set on foot. Fungoid elements floating by thousands in the air immediately take the form of Cryptococci in this mixture; these begin their increase, and with it fermentation. In this way is Cryptococcus carried into the hive.

It has lately been attempted to bring forward a new theory of foul brood, founded on the proposition that it arises from decomposed pollen, which, being mixed with honey and given as food to the brood, kills it. It has also been stated as a great novelty that pollen contains nitrogen—a fact which has never been doubted. It is plainly enunciated by Dzierzon ("Rational Bee-keeping," page 29), when he says, "The bees also show a desire for food containing nitrogen and albumen, and such for them is pollen." But the fact that decomposed pollen may produce foul brood is also at all events not new. Kaltefleiter says (Berlepech, "The Bee and Its Culture," second edition, 1869, page 202), "Combs of last year diffused a foul smell; they were damp, and the pollen was mildewed. I gave these combs to three strong colonies, and all three became foul and perished."

The fact that decomposed pollen when mixed with honey produces foul brood may, as we shall readily perceive, be traced back to this: that if a nitrogenous substance be mingled with honey and water the conditions of fermentation are fulfilled; the Cryptococcus, everywhere floating in the air, enters into and multiplies in it, and thus with the fermenting honey enters as food into the hive. Thus it amounts to no greater novelty than this, that fermenting honey produces foul brood. Who ever doubted that bees and brood could be poisoned by fermenting and spoilt honey?

It has been stated at the commencement that not only the Cryptococcus, but also the allied smaller, and generally the smallest fungoid form, the Micrococcus, is met with, and multiplies in a billionfold manner in foul-broody cells. Most probably it is in the form of the contents of the spores of many fungoid and mildew formations that foul-brood fungus enters the hive.

Whether all or only some of the fungoid and mildew formations are capable of producing foul brood by the contents of their spores has yet to be investigated and established by scientific experiments. The culture of the discovered Micrococcus granules in the manner previously described will identify the mother plant.

The theory that Micrococcus reaches the hive through the contents of fungus spores, explains many remarkable phenomena. Höfler, of Schroth, 1860, page 25, says, "In many years the blossoms of trees are actually poisoned by dew and fog, so that the bees become ill." Hoffmann Brand says in the German Bee Journal, 1856, page 64, "The pollen appears greasy in foul-broody hives, and contains a kind of fermentation, which arises from poisonous dews." Berlepech says (2nd edition, page 203), "In a conversation which I had with Dzierzon in 1855, he was disposed to assent to the idea of poisonous dews when he said to me, 'I think I have frequently observed this in my own neighbourhood, especially during the time of the tree blossom, and foul brood may well arise from it; at least, these poisonous dews are mostly the cause of the so-called vertigo.' What, then, are these poisonous dews and fogs? Nothing but the fall of fungoid mildew and fever spores, which, multiplying billionfold, naturally float in the atmosphere. In many years these develop themselves in immense numbers as uni-cells—as, for example, the smut in corn (*Uredo segetum*)—and in this way every form may readily present itself.

We may thus perceive that the observations of distinguished naturalists, however inexplicable they may at first appear, are in the end invariably confirmed by science.

One instance among others, showing that dew and showers precipitate microscopic vegetable atoms to the earth, is afforded by the so-called *sulphur rain*. Many years ago, I had myself an opportunity of observing this phenomenon, and proved by microscopic examination that the supposed sulphur was nothing

\* By ordinary putrefaction we understand a whole series of chemical processes, partly of a very complex character, which take place in organic substances. It is always a process of reduction. The elements separate and reunite in fresh combinations, as, for instance, hydrogen and nitrogen become ammonia, &c. We understand decomposition to be a process of oxidation—the combination of oxygen with the elements already present. Ordinary putrefaction is quite distinct from the specific putrefaction produced by parasite. Specific putrefaction exists in milk-fever, and in the mucous membrane of the intestines during cholera. Ordinary putrefaction attacks bodies protected from the oxygen of the air—as for example in the grave—decomposition when they are exposed to the air.

+ Those who see nothing in foul brood beyond ordinary putrefaction, are perfectly unable to explain how the disease spreads from one hive to another.

\* The results of the commission appointed to test this theory lose all and every significance after this.

but the pollen of the fir tree. There are but small plantations of firs in our neighbourhood, so that it appears that the pollen must have come from a considerable distance.

It is not impossible that the spores of the ordinary brush-maiden may be capable of producing foul brood without having attained the Cryptococcus form by fermentation. It is true that mildew is frequently found in hives, especially in the spring, while foul brood is comparatively rare occurrence. Still, it is always suspicious, and the question can only be decided by experiment.—*DR. FLETCHER, Sanitifer.*

(To be continued.)

## OUR LETTER BOX.

**COMMITTEESMAN EXAMINING.**—We have so many letters on this subject that we must decline inserting any more. One letter demands "our opinion, and it might not be entirely correct, for if committees did not exhibit one cause of suspicion of unfairness would be avoided, but if committees were not allowed to exhibit a large proportion of shows would not be held. It is a justified pride to excel in one's own neighbourhood, and must rare are the occasions when a committeesman dares to try to influence a judge, and quite as rare is the event of a judge being base enough to be so influenced. We have seen a letter from "Eosotis" to Mr. L. Wright, in an answer to one from the latter. It discloses all personality, and we would have been glad to have it, for they credit to each writer, if we had not been convinced that the controversy had better cease.

**BOOKS (A.O.).**—There is no separate work on Game fowls by any one. "The Poultry Keeper's Manual" includes Game fowls, and has a coloured drawing of a Black-breasted Game cock and hen. It can be had from our office, price 7s.

**PATENT PICTURE SHOW.**—A picture exhibition is conducted as it ought to be the prices should be paid within a week. Many committees pay them during the show. As the secretary has not answered your letter, and the exhibition took place a month since, write to him again, and say that if you are not paid forthwith you will sue him in the County Court, and if he does not reply satisfactorily carry out your threat.

**WHITETHROAT POULTRY SHOW.**—We are requested to state that the second prize for Young Spanish at this Show was awarded to Mr. P. H. Jones, of Fulham, and not to Mr. Brierley, whose birds were absent.

**BRAHMAS OUT OF CONDITION (Dark Brahmas).**—Your feeding seems judicious, but your birds are evidently out of condition. Take the perch away for a day or two. Purge both the birds thoroughly, and give the cock a stimulant in the form of beer. You will also do well to give the cock copious morning and evening, a pull the size of a garden pea for each dose.

**BREEDING SILKIES (Cochins, Beards).**—Bred from the rose-combed, bearded, and crested birds. They should have metallic-blue faces, and blue skins and legs. Very good specimens should be five-caved.

**BREEDING FOWLS FOR EGG-PRODUCING (Extreme Cocks).**—We advise you to keep either a Brahma or a Cochin cock. They are good stock-getters, very hardy, and do well in confinement.

**WHITE DORRING BANTAMS (Dorring Bantams).**—We have as yet seen none of them. They will be unquestionably excellent, but we are not sure we should admire them. We cannot reconcile to ourselves the merit of reducing to a futility that which is an important feature in the valuable properties of a breed—viz. size. As yet only one Bantam has succeeded, except the Game, that is, the Cochin, but either the monopolistic wish to keep them to themselves, or they are difficult to keep up, for they do not seem to increase in numbers.

**GAME FEATHERS (An Amateur).**—There is nothing in the feathers to distinguish a bird shown in a class for "Black-breasted and other Reds." We speak as a colour. The lump, long, and poor feather would hardly come from a first-prize bird, unless he were successful where the competition was very small indeed. Redundancy of plumage, whether in hackles, saddle, or tail, is an evil in a Game cock.

**PULLETS NOT LAYING—FOWLS' DUNG AS MANURE (P. R. N.).**—Your pullets must lay. Either they eat their eggs, or they are otherwise disposed of. That they are not hatched by the chickens is not probable. The smothering is the result of the cold and changeable weather. You may advantageously alter the feeding by giving three meals per day—viz., barley in the morning, barley for one succeeding meal, barley meal for the other, changing the corn. At this time of year, at this time of year, when there is little natural food, you must feed three times a day. Before we can possibly answer your letter we should know the age of the cock. If he was hatched in April or May he is quite fit to put with hens. At this time of year he should not have more than four, but as the weather improves the number may be increased. The manure from fowls is unequalled for rose culture, and, like guano, excellent for most garden crops, when mixed with twice its quantity of earth. By itself it is strong enough to be injurious.

**CONFINING HAMBOURGS (C. F. IV.).**—If the space enclosed be small, a netting 8 feet high may enclose Hamberg fowls, but if he large they will assuredly fly over it. Cover the top. The Brahma cock will not be in any way injured.

**HEN'S INTESTINES SWELLED (Constant Subscriber).**—All the symptoms you mention can be proved by injury of the spine, difficulty in laying an egg, or stoppage of the intestines. The first can be cured by oil and cases and not worth trying to cure; the second is easily treated. It merely requires to have a wing feather dipped in oil and passed gently down the egg-passage till it meets the egg. This latter moves as soon as the feather touches it, and the egg comes out. The third is cured by the egg finding an easy exit. Do not attempt to assist nature by giving just the idea of a squeeze or push; the shell is very weak while in the bird, and if broken it makes all three cases hopeless, so far as cure is concerned.

**POINTS OF DARK BRAHMA POULTRY (Irish Subscriber).**—Dark Brahmans should have pea-combs and pencilled plumage, all except the neck, the

latter black and white striped, no vulture-hocks, yellow legs and well feathered. The cocks should have pea-combs, black or black and white speckled breasts, light almost white hackles and saddle, and black tails. Both should be large, and should have well-feathered yellow legs. Vulture-hocks are feathers growing down below the knee-joint, and projecting outwards.

**LONG-FACED BLACK BEARDS (Idem, p. 10).**—The Short-faced Beards were bred from the Long-faced originally, as were all Short-faced Tumblers from their longer-faced brethren, but now for many years the two breeds have been quite distinct. We suspect a dash of Antwerp blood or Skinning blood in the best Long Beards. They are rather coarse Pigeons, but useful.

**BLUE ROCK DOVES (R. H. Cross).**—As you have hitherto tried in vain to procure these birds, an advertisement in our columns would bring them if it were to be believed. Now is an excellent time to settle them, as they would breed directly.

**BEEES (Idem).**—As you think the price of the hives you mention is too great, you could procure bees from some beekeeping cottager at a cheaper rate. It would be better to have a few hives, and let the beekeepers' inventions have been at great expense, to say nothing of the ingenuity and skill they have exercised. Good things are always expensive.

**POULTRY DRESS (Idem).**—We have kept many, but all soon died. Your treatment was what is always recommended. A few tortoisés appear to live a long time, at least we have heard of such, but the life of the majority is in England but brief. "The Farmer's Will" J. E. of Morton, please to say how he tied combs firmly into frames? As I have always used thin slips of wood and tacks, but think strong wire if the combs can be tied firmly as it could be more easily removed.—R. H.

**EARLY BROODS OF CANARIES (F. T. 1869).**—Such instances of early hatching are not unusual. When the hens are kept in a room in which a tolerably warm temperature is maintained—in a kitchen for instance, they are sure to become "fresh," at or about the close of the year, hens in particular. Mr. Nicholson, Inspector of the Somerset Constabulary.

**BREEDING CANARIES (Idem, Feb. 1869).**—In a cage nearly twice as large as, and similar to a Canary's breeding-cage, with a wire front only, place at one end a rough box covered with dry moss to represent an old stump. Have a hole large enough to allow the birds easy access; place a small tray or half a coconut shell inside, containing the nest already placed, composed of dry moss, grass, and wool, similar to that which Canaries build with, with some loose in the cage, or in lieu of a box the outer shell of a coconut (the thick fibre part after the nut has been taken out), with a hole cut in one side, large enough to admit the bird.

Place the cage in a retired situation. The food should consist of Canary seed, millet, and oats mixed; also green food, such as ground-ell, watercress, and chickweed, occasionally. When they have young add boiled egg and new seed, and when long grass is used let them have a bunch of it by itself. We would advise their being put into the cage at once in order to get accustomed to it.

**PRACTICAL WORK ON PEE CULTURE (A Subscriber).**—Taylor's "Beekeeper's Manual," published by Groombridge & Sons. Our opinion of Mr. Taylor's manual was fully stated in THE JOURNAL OF HORTICULTURE of May 6th, 1869.

**THERMOMETER IN A NETT'S HIVE (Thurston).**—We do not deem a thermometer at all essential to the successful working of a collateral hive. If the bees are not put in the netts, the bees will not be put in the netts, probably be supplied without much difficulty; if otherwise, we think that even if successful, the job would even be more trouble than it is worth.

## COVENT GARDEN MARKET—JANUARY 12.

It is difficult to find any change worth noting for all our operations are on a limited scale, and the only articles which change hands to any extent are the rough produce from the open ground. Among forced produce may be mentioned Asparagus and Rhubarb. The Potato trade is dead at last week's prices.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	10	0	6	10	0
Apricots.....	10	0	6	10	0
Cherries.....	10	0	6	10	0
Chestnuts.....	10	0	6	10	0
Currants.....	10	0	6	10	0
Black.....	10	0	6	10	0
Figs.....	10	0	6	10	0
Filberts.....	10	0	6	10	0
Cobs.....	10	0	6	10	0
Gooseberries.....	10	0	6	10	0
Labrusca.....	10	0	6	10	0
Lemons.....	10	0	6	10	0
Melons.....	10	0	6	10	0

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	10	0	6	10	0
Asparagus.....	10	0	6	10	0
Beans.....	10	0	6	10	0
Broad.....	10	0	6	10	0
Beet.....	10	0	6	10	0
Broccoli.....	10	0	6	10	0
Brussels Sprouts.....	10	0	6	10	0
Cabbages.....	10	0	6	10	0
Capisiums.....	10	0	6	10	0
Carrots.....	10	0	6	10	0
Celery.....	10	0	6	10	0
Coleworts.....	10	0	6	10	0
Cucumbers.....	10	0	6	10	0
Celery.....	10	0	6	10	0
Endive.....	10	0	6	10	0
Fennel.....	10	0	6	10	0
Garlic.....	10	0	6	10	0
Herbs.....	10	0	6	10	0
Horseradish.....	10	0	6	10	0

## WEEKLY CALENDAR.

Day of Month.		Day of Week.		JANUARY 20—26, 1870.			Average Temperature near London.			Rain in last 43 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.		
							Day.			Days.		m. h.		m. h.		m. h.		m. h.		Days.		m. a.				
20	Th	F			Meeting of Royal and Linnean Societies, 8.30 P.M.			42.4	30.6	36.5	15	56	47	26	4	14	8	41	10	18	11	19	21			
21	F							42.9	32.0	37.5	20	55	7	28	4	35	9	6	10	19	11	36	21			
22	S							43.1	32.5	37.7	18	54	7	30	4	54	10	32	10	20	11	52	22			
23	SUN	3 SUNDAY AFTER EPIPHANY.						42.6	32.4	37.5	18	53	7	32	4	55	10	35	10	21	12	8	23			
24	M	An. Meet. of Entomological Soc. 7 P.M., and			(Meet. of Royal Geographical Soc. 8.30 P.M.)			43.1	32.1	37.6	19	52	7	33	4	14	0	19	11	(	12	22	24			
25	Tu							43.4	32.3	37.9	21	51	7	34	4	31	1	45	11	23	12	35	25			
26	W	Meeting of the Society of Arts, 8 P.M.						45.5	32.5	38.9	20	50	7	36	4	48	2	16	0	24	12	49	26			

From observations taken near London during the last forty-three years, the average day temperature of the week is 43.3°; and its night temperature 32.0°. The greatest heat was 56°, on the 25th, 1849; and 27th, 1861; and the lowest cold 15°, on the 25th, 1853. The greatest fall of rain was 0.99 inch.

## AUCUBAS, AND THEIR CULTURE.

**T**HE old Aucuba japonica, with large, bold, yellowish-green leaves, blotched and dotted irregularly with yellow, is familiar to everyone; it has long held a high position as a shrub, and as a gold-leaved one is inferior only to the Holly; and there is no other shrub with golden foliage that can be compared to it for general usefulness. Undoubtedly the finest of all yellow or gold-variegated shrubs are the Hollies, but Hollies to do well require open or but very slightly shaded situations, whilst the Aucuba will grow almost anywhere and in any way. It will grow under the shade of large trees, forming a good-sized bush or shrub, where the Holly, Yew, Laurel, Privet, Rhododendron, and other evergreens have ceased to preserve their existence; indeed, in this respect it excels all shrubs, always excepting the Periwinkles and the Ivy. I may here mention that Skimmia japonica under the shade of trees has beautiful dark-green leaves, and in winter is literally loaded with bunches of red berries, thriving in any confined shaded border. In the next place, the Aucuba having very fibrous though fleshy roots, may be transplanted at almost any period with safety, it being hardly possible to remove it without a good ball; and unless the roots are very much reduced in the endeavour to take away the soil or lighten the plant, it may be transplanted as well in May and throughout the summer as at any other time. It may be removed as often as we please, if only care be taken to preserve a ball, and supply the plant with water in dry weather. Old plants can be removed as readily, or even better, than young plants. On account of the facility with which this shrub can be frequently transplanted uninjured, it is, as Mr. Robson told us but recently, one of the very best for giving to flower beds and borders a furnished appearance in winter. Again, in smoky town gardens in which few evergreens thrive, I might almost say it luxuriates, but I shall rest content with stating that amidst smoke and dust it is almost the only evergreen that is able to keep pace with the times and place. Other rivals it may have, as Rhododendrons, which, though they withstand smoke quite as well, are not so enduring of wind, and in a border or group of deciduous trees and shrubs are about as useless as anything can be for underwood; but there the Aucuba flourishes, and becomes even more beautifully green. And it is not colour we need in town gardens, but Nature's eye-relieving green, for which every town denizen pants, and towards which he hastens as often as his means and pursuits will allow.

I might enlarge still more on the merits of the Aucuba as a useful and ornamental shrub, but since the introduction of the male Aucuba, the old variety (for I cannot look upon any variegated-leaved plant as being other than a variety or sport from a green-leaved species) will have many rivals: though as a free, vigorous, and distinct variety its place will not be easily taken, especially now that we are enabled to see it decked in rubies—not all winter, as some would have us believe, bearing clusters

of oblong, tolerably large, orange or red berries; for up to Christmas they have scarcely any colour, and in a green state are no great ornament. About that time, however, the berries begin colouring, and up to June they enhance the plant's beauty. With the production of berries we have a succession of comparatively small growth, for the vital forces of the plant are concentrated on the perfection of the berries; the shoots are shorter, less strong, and shorter-jointed, and the leaves smaller, and not half so handsome. Like the Pear on the Quince, and the Apple on the Paradise stock, a sudden and in some cases early puberty shows itself to be the greatest of all checks to growth, and in no plant have I seen so decided an instance as in the Aucuba. As regards growth, and the beauty of an Aucuba's foliage, I think it would have been well had the male Aucubas been left for an indefinite time in Japan. But are the plants not more beautiful in berry? Granting that they are so, it remains to be seen whether our feathered friends will not take the additional beauty we anticipate in the berried Aucuba. I feel tolerably certain the berries must form a not unavourable meal to the Blackbird and others of the feathered tribe, and that our beautified Aucubas will be in future, as they are at present, pretty only as novelties in structures to which birds have not admission.

Any danger there might be of the growth of the Aucuba being interfered with by allowing the plants to bear an unlimited quantity of berries, can undoubtedly be prevented by going over the plants after flowering, and removing the seed vessels as done in the case of Rhododendrons and other plants. Whilst we could remove the seed vessels from plants which we wish to have clad with vigorous foliage, those on which berries are desired could be left without any removal of the seed vessels after flowering.

The new varieties of Aucuba must be regarded as among the greatest of acquisitions. I see very little good in the introduction of the male variety merely on the ground that because we have it our old Aucuba will be beautified with berries. For reasons already given, I consider the Aucubas as shrubs we value for their foliage and free growth, and far more handsome when unberried than berried. There are other and far greater results to be looked for from the introduction of the male in addition to the female variety. In town gardens a want has long existed of a shrub of moderate growth to take a position occupied at present only by some dreary deciduous shrubs. Something is wanted to give warmth, and relieve the monotony of frowning deciduous shrubs, or the glaring white or red of town-garden surroundings. What is wanted is a shrub that in town gardens would be to them what Laurels are to gardens in the country. This I think we have in the green-leaved Aucubas. Some of them are of a bright green, vigorous, and handsome growth, and must in a few years find their way into every town garden; and in those where the Rhododendron, from peculiarity of soil, does not grow, they will have a hearty welcome. Indeed, judging from what has already been accomplished with the new kinds, and mainly by the introduction of the male

variety, we may expect to find *Aucubas* forming quite a feature of our future gardening, and especially town gardening. Already we have many beautiful varieties, both male and female, all of which seem to be equally hardy with the common sort, and I have no doubt of the new kinds receiving an equal share of our attention. The kinds that I have seen most of are:—

*Aucuba japonica var. castela*.—Green leaves; distinct and fine. Male. *A. japonica var. elegans*.—Leaves of a plain green, with an irregular golden blotch in the centre, having a deeply-toothed margin. Male.

*A. japonica var. rubra bicolor*.—Large green leaves, with an irregular stripe of whitish yellow along the centre.

*A. japonica var. castela variegata*.—Rather long narrow green leaves. Male.

*A. japonica Umbata*.—Leaves with a broad white stripe in the centre, equal in width to about one-third of the leaf; the margin of the leaf green. It is by far the finest of all the variegated-leaved sorts.

*A. japonica longicaula*.—Leaves green, longer and narrower than in most varieties. It is of elegant growth, and one of the best of the green-leaved sorts. The leaves are deeply serrated.

*A. himalaica*.—Leaves bold, serrated, and bright glossy green; very free in growth. This and the preceding are in my opinion the future 'Laurels of town gardens.'

*A. japonica formosa*.—Green leaves, being, perhaps, the original of the common variety, now known as *A. maculata*, and, like it, bearing a profusion of coral-red berries.

*A. japonica macrophylla*.—Broad, plain green leaves, notched with shallow teeth; very distinct and handsome from foliage alone.

*A. japonica picta*.—Leaves with a broad blotch of yellow in the centre, and an irregular margin of green; edges coarsely serrated. Male.

*A. japonica ovata*.—Leaves of a bright dark green. Apparently a highly ornamental shrub.

*A. japonica grandis*.—Leaves very large, deeply and irregularly serrated, and of a beautiful dark green. Female.

*A. japonica variegata*.—Leaves deeply toothed, bright deep green, spotted all over with yellow; very fine. Female.

Excepting *A. Umbata*, there is none of the variegated sorts equal to the old kind, and as a berry-bearer it is most prolific. All the varieties named are, however, well worthy of cultivation; and such green-leaved kinds as *A. longifolia*, *himalaica*, and *grandis* cannot, in my opinion, be too extensively propagated, as they are certain to be in great demand for town gardens.

All *Aucubas* are readily increased from cuttings put in under a cold frame, from the end of August to the end of September, in sandy soil, and kept close, shaded, and protected from frost by a covering of mats in severe weather. The best cuttings are those of the current year's growth, with a small portion or heel of the two-year-old wood. By the following autumn they will be rooted, when they may be removed and planted. Any not rooted may be again put in under the frame. They should have air in mild weather, drawing off the lights, but protection from heavy rains and from frost. During bright days keep on the lights, but shade and admit air by tilting the lights. After April the lights may be withdrawn. Water as required in summer.

Propagation by cuttings, answering as it does well for the old kind, is too slow a process for increasing the stock of the new varieties. These should be worked on the common kind. Every eye will make a plant in about half the time that we could hope for from a cutting of a length sufficient to form half a dozen grafts; and when we find that half a dozen plants in place of one can thus be obtained, and in less time, no one can fail to see the advantage of grafting as compared to propagation by cuttings. The grafting is a very simple process. Place in 4 or 6-inch pots as many plants of the common *Aucuba* as are wanted. Their stems should be clean, and in thickness about half that of the little finger. Place them in a cold frame, and this being done early in September, the plants will be ready for grafting in six weeks, and will continue fit for use up to March. Being in a frame, the stocks are always in condition. The best time for operating is, probably, in autumn, after growth ceases, and the wood has become firm, and early in spring before the scions commence growth. The branch is cut into lengths of an eye each in a slanting direction from the back of each eye or leaf, and about half an inch above it, preserving the top or growing point also for a graft after the shoot has been cut up into as many lengths as there are eyes with joints far enough apart. An inch, or an inch and half, is quite long enough. Care must be taken of the leaf from each eye, or rather each leaf, at the base of which is a bud. The scions are put on the stocks quite close to the

surface of the soil, and as shown in the accompanying woodcut. This method is a sort of side-grafting, as the head of the stock is not cut away until the grafts show, by their growing, that the union is effected; then it is cut off close to the scion.



This is done when the eye of the scion begins to grow. The scion is securely tied with a strip of masting, taking care that the barks of scion and stock meet each other exactly on one, if not both sides. Set the plants in a frame placed inside a house from which frost is excluded, but no more, and doubt the light or lights with a size of whitening and milk, which will give an agreeable shade. Keep the lights closed, and see that the plants have water as required. Do not give any air, or but a very little, in case of damp, until the scions begin to grow; then by degrees admit air, increasing the amount with the growth, and hardening-off gradually. The grafts will make good plants in a year.

Plants obtained by grafting are just as good as those from cuttings, and when they are planted out the junction of the stock and scion should be covered with soil, and in due course a mass of fibres will be produced from that part. Grafting, then, is not only the most speedy

means of obtaining a stock of the new sorts, but on their own roots—strong, vigorous plants, and very many more of them.

Producing berries, as the female varieties do freely, it is from these that we may look for new varieties, both green-leaved and variegated. The seeds are usually ripe in April or May. They may then be separated from the pulp, placed in dry sand for a few days, and afterwards sown in good, rich, light soil, covering them from one-half to three-quarters of an inch with fine sandy soil. Set the pots in a cool greenhouse, cold pit, or frame, protecting them from sun by shading, and using mats as a covering in severe weather, the soil being kept moist, but not saturated. In the course of a year the plants will appear. When large enough to handle they may be potted-off and continued in a cold greenhouse until established, and then planted out in the open ground, though they will grow no more freely kept under glass for a time, or planting out may be deferred until they become strong. However, as hardy plants, the less pampered they are the better. The novelty of treating them as pot plants will soon wear out. To save space, the berries may be kept in damp sand in a dower pot until the February after gathering, and may then be sown.

The rage at present is all for berried *Aucubas*, which certainly are fine ornaments for the greenhouse when bearing good clusters of their coral red berries. They are in season for decorative purposes from midwinter to spring, and from the great substance of the leaves they will stand in a cold room longer than many others, whilst in cold halls and rooms, and those not overlight, *Aucubas* are very useful, as tender plants cannot be placed there without injury, whereas the *Aucuba* will bear a three-months' sojourn without any great, if any, injury. Flowering, as the male does, several weeks or months before the female plant, we have to resort to artificial fertilisation. The female plants that are showing largely for flower should be taken up early in spring, or as they commence swelling the buds, and be placed in pots sufficiently large to hold their roots without cramping. They should then be set in a light, airy position in a cool house or pit. This will cause the female flowers to expand earlier, and the male plants being retarded by keeping them in a cool place, the

pollen may not be too much in advance of the female flowers. All that is necessary is to place the male plant in flower by the side of the female. One male will be sufficient for a good-sized houseful of female plants. It will not, however, be unwise, though not absolutely necessary, to fertilise the female flowers with those of the male. To do this the pollen of the male should be collected on a dry day, as it ripens, on sheets of clean white paper, and the fertilisation of the female flowers may be effected with a camel's-hair pencil. This ought not to be attempted until the flowers are fully expanded. After fertilisation, when danger from frost is past, the plants should be plunged out of doors in an open, sheltered situation, returning them to the greenhouse or other cool house if wanted for ornamental purposes, say in the beginning of November.

If the female plants are not in flower when the pollen is ripe, all we have to do is to collect the pollen on clean white paper, place it in the sun for a few hours, keep it in a cool, dry place until the female flowers expand, and then use it. The pollen will keep for twelve months at least, if not longer; practically, thus males flowering in the greenhouse or out of doors in December, or early in the year, may be kept for the purpose of fertilisation until the females in the open ground are flowering in April or later.—G. ABBEY.

### POTATOES FOR SETS.

["L. W." must forgive us for not answering his question before, but we waited for a reply from a good authority, and the following is his answer.]

I ADVISE "L. W." to adopt a preparation for his seed Potatoes which I strictly follow myself, and have for many years and many times recommended in these pages—namely, at lifting-time let him select medium-sized tubers of the sorts. Those we may consider as being scarcely arrived at their perfectly mealy ripeness I have proved answer best as sets. Let them lay exposed on dry ground (in the shade preferably, for a hot sun will bake and blight them as if with disease), till they become slightly greened; and during this process, if they be turned once they will become greened equally all over. They should then be stored away, from that time till the day on which they are to be planted, upon wooden slabs formed into platforms. These may consist of old doors with laths nailed round their edges to secure the tubers from rolling off, as they are placed upon them in single layers. These slabs, or doors, should be placed in a dry cellar, outhouse, or loft secure from frost, where a subdued light can gain admittance, and in a temperature averaging about 40°, the cooler the better, provided it is kept above the freezing-point. When frosts prevail the tubers should be covered with matting, straw, or something to insure their safety.

About three weeks before planting time, possibly sooner, as that will depend entirely on the lowest degree of temperature, with light, in which the Potatoes have been kept, every eye or shoot, excepting the most prominent one situated nearest the crown of each tuber, should be carved out to the very base with a penknife, which will not only prevent an injurious amount of foliage afterwards, but will meet the very old-fashioned idea, still much resorted to in the north, of "snicking" off a piece from the base of each set before planting. If this be done the tubers when placed in the soil will already have healthy young shoots, almost as sturdy as one's little finger, as firmly attached as the limpet to the rock, and incapable of becoming detached, unless by the roughest treatment. From this single sprout three or four sturdy stems will branch out, and bear a fine and an even-sized abundant crop, with a flourishing though not an over-luxuriant foliage; thus amply compensating for the extra care and trouble, besides the advantage of insuring the maturity of the crop some three weeks sooner than the usual enervated sets can be made to do. Common sense, one would hope, must show almost anyone that the seed-sets treated as above are far more to be depended upon than those usually committed to the soil, after having been tumbled about anywhere, probably from the time they were taken up till they are "chucked" into the soil again with scarcely a tittle of their natural stamina, on account of the "sproutings" they have undergone, and possibly to be then slashed into pieces, and placed in furrows with raw dung.

The seed Potatoes prepared as above may be planted later by fully three weeks, as no time is lost, in consequence of their having young shoots which are ready to begin to cater with the roots at once. The young shoots begin seeking for the light of

day immediately after the sets are planted, which is not the case with sets placed in the soil without shoots, and by so much we avoid the evil of planting too early in cold, wet, backward soils, situations, and seasons. Further, by reason of the shoots which we know of, we avoid altogether the possibility of the "club" on shootless tubers. We must not, however, shut our eyes to extensive breadths, or to where circumstances alter cases. The motto of one of our best Potato cultivators, the Rev. W. F. Radcliffe, is repeated to me in a letter which I have just received from him—"Early planting, early ripeners, and late keepers," than which no advice could be better if the frosts in the ides of May could be warded off. "Ah! there's the rub." If I were to plant my main crop of Potatoes about the 17th of the present month (January), which Mr. Radcliffe informs me he intends doing, there would be nine chances out of ten of my crop being killed down by frost in the "lap of May." Sevenfold injury would thus be done to me in consequence of the forwardness of the haulm arising from early planting. Thrice I have had my Potato tops killed "black down" in June. In southern counties, warm situations, and light and sandy soils, and in a climate, such as Mr. Radcliffe's beautiful Dorsetshire, plant early by all means, and then, of course, previously germinated sets in the way that I have stated above could not be really, nor would it matter; but even in this case I would have but a couple of eyes to each tuber, and pull away one of the shoots as soon as it appeared above ground, provided both of them pushed healthy and strong. No, I dare not plant till the first or second week in April, nor eventually let the foliage take its chance uncovered from soil, without great anxiety, until the second week in May is past, and then they grow rapidly. Therefore, I say, Plant early if you can or dare do so, and always "early ripeners and late keepers;" and from what many people have seen, and others have heard, I do not think I may be called an unsuccessful cultivator of the Potato.—ROBERT FENN.

### PITMASTON DUCHESS PEAR.

I HAVE frequently been tempted to write to you with reference to a most excellent Pear which I met with quite by accident, and which, I think, is not generally known, but I read in your paper of January 6th an account of the Pitmaston Duchess, and I believe it to be the same Pear. I was staying at Malvern some three or four years ago in November, and I bought some Pears of unusual size and flavour; they had tender melting flesh, and, indeed, possessed all the good qualities of a Pear of the highest class. I inquired the name of it from the fruiterer, and he replied that it had no name, but as it had been raised by Mr. Williams, he himself distinguished it as "Williams's Goliath." I was so well satisfied with the qualities of the Pear, which resembled Marie Louise more than any other, that I asked the owner of the trees to sell me some. I bought two, for which I paid rather highly; but one was a large tree—a standard, at least 8 feet high. They were planted very late in spring, but the large tree, to my delight, broke out in one large sheet of bloom. It was impossible the tree could carry many Pears that year, but four came to maturity. The next year it bore a few, and they were very large, and of exquisite flavour. This last season the tree was covered with bloom, but the late frosts in this county (Cheshire), killed the bloom on most of the standard Pear trees. This suffered badly, but matured a few Pears, and I considered them quite equal to Marie Louise, and far better than any other Pear I can grow in this climate. I tried to buy more trees, but my correspondent at Malvern told me he had sold all his stock to Messrs. Smith, of Worcester, and I believe they have named the Pear "Duchess Improved," or Pitmaston Duchess. I have given away hundreds of grafts, and believe growers of it will agree with me that it quite justifies all the encomiums you have passed upon it.—F. H. C.

### A HINT FOR YOUNG GARDENERS.

I was very much pleased to read the chapter for young gardeners in your issue of the 30th ult., when I saw the question, "What are you doing these winter evenings?" Allow me to add that one thing is not properly looked after by young men, and that is keeping an account of their work. Doing so I find very useful. One of Blackwood's "Scribbling Diaries" costs only 1s., and I would advise every young man to have one, and keep it properly, writing down every night the work

of the day. It is all needed for after-knowledge. Let us each try to maintain the standard of horticulture, and work with a will, looking to those above us to lead us on. We in our turn, when they shall have fulfilled their mission, may take their places; but let us hope that the leading horticulturists may long be spared us, and to write their experience in "our Journal."  
—W. R. T., *Horwich*.

### A NEW WARM FRAME.

When the scribbling fit is upon me, which frequently happens when my wife is from home, I often think if there is anything I can tell the readers of "our Journal" that is likely to be of interest to them. One of my friends tells me that certainly no knowledge will do with me, for I tell all I know. Never mind; if anyone is pleased with what I write, that is enough; to impart an idea is the next best thing to receiving one, as to see a hungry man eat is the pleasure which is most nearly allied to eating when one is hungry.

I have two new frames which so perfectly answer their purpose that I think some will be glad to have their attention directed to them. The lights are hung on pegs in place of hinges, so that they can be taken off to paint or for any other purpose. Those who know how often hinges break and rust through, and how inconvenient it is to paint flat lights, will see the advantage of this mode of hanging them. A 4-inch pipe runs quite round each frame, connected with a boilerhouse, and furnished with a valve, so the plants are secure from frost. The frames are filled with cocoa-nut refuse a foot in thickness, in which the plants are plunged to the rims of the pots. But the greatest improvement is that each frame is furnished with a moveable ridge, so that ventilation can be given instantly without opening a light. Though my frames are each 100 feet long, a few turns of a wheel will lift each ridge with the greatest ease. The advantages are obvious. The plants are near the glass, and can receive air without cold draughts of wind blowing upon them. Then, again, the pots being plunged in cocoa-nut fibre, there is no evaporation from the pot sides, and they do not want water once a fortnight, except a few plunged close to the pipes. The saving of labour during a long winter is more than most people can imagine who do not know what it is to water carefully thousands of plants, or even to open and shut the lights of such large frames. But this saving of labour is not the chief advantage; the increased health and beauty of the plants are so apparent that the fact is remarked by all who see them. Tricolor Pelargoniums look more as if they were summer than midwinter, and green-leaved varieties are as bushy and as green as though they were growing in open beds.

There is nothing in this arrangement which is protected by patent, though several features are quite new, particularly the simple means of raising the ridge, and I shall be happy to show them to any one.—J. R. PEARSON, *Chilwell*.

### NEW MODE OF SETTING BOILERS.

SEVERAL boilers in Sheffield have been set upon a new plan. By a simple arrangement of fire-clay plates, says the *Sheffield Independent*, so managed as not to contract the capacity of the flue at any single point, the gases, after being thoroughly intermixed, are at four successive stages in their progress through the flue, thrown in thin streams against the surface of the boiler. No part of the gases can escape this repeated forcible contact with the boiler, and in the process the heat they contain is so thoroughly extracted and absorbed that the result obtained, as proved by careful tests, is the evaporation of nearly 12 lbs. of water for every single pound of fuel, common boiler else being used. This gives a large saving of fuel as compared with the best modes of setting previously in use. The patentees, we understand, guarantee a saving of 25 per cent. The apparatus has the additional advantage of being an effective smoke-consumer. The plan is applicable to any class of boiler, can be applied without unsuited boilers already fixed, and the plates being of fire-clay, the cost is so moderate as to be very soon recouped by the saving of fuel.

EXHIBITION AND TRAVELLING CASE FOR FLOWERS.—We are informed that Mr. W. E. Chapman, of Llandrindog, has provisionally patented a very useful case called "Chapman's Miltum-in-parvo Exhibition and Transmission Cut Flower Packing Case." Its advantages are that flowers can be arranged for exhibition, and sent by rail or carrier, without being injured, even if the

cases are placed on their sides, or upside down. The flowers are placed in water, none of which is spilled, nor are the flowers displaced.

### ROYAL HORTICULTURAL SOCIETY.

JANUARY 19TH.

FRUIT COMMITTEE.—Rev. George Kemp in the chair. Prizes were offered for the best three dishes of kitchen Apples. There were eight competitors. The first prize was awarded to Mr. Parsons, of Dancesbury, for large and handsome specimens of Blenheim Orange, Doncelow's Seedling, and Borr Knot. Mr. Earley, of Digswell, was second with Gooseberry Apple, Doncelow's Seedling, and Dredge's Fame. The other exhibitors were Mr. Mills, of Wycombe Abbey, who sent More de Menage, Doncelow's Seedling, and Waltham Abbey Seedling; Mr. S. Ford, Leonardlee; Mr. Garland, Killerton, Devon; Mr. Cox, of Redleaf; Mr. Parsons, Acton Green; and Mr. Stephenson, of Leigh Hill, Essex. Mr. Gardiner, of Eastington Park, Stratford-on-Avon, sent three dishes of desert Apples.

In the class for Kitchen Pears the competitors were Mr. Gardiner, Mr. Ford, Mr. Garland, Mr. Hobbs, Thames Bank, Great Marlow. The first prize was awarded to Mr. Ross, Welford Park, for Uvedale's St. Germain and Catillac, and the second to Mr. Hobbs for Catillac.

Mr. William Paul sent a basket containing about fifty specimens of dessert Pears in fine condition, and all very true to name, to which a special certificate was awarded. Mr. Sidney Ford sent a dish of Knight's Monarch Pear, grown on a pyramid at Leonardlee, Hereham. The flavour was excellent, though the fruit was scarcely ripe.

Mr. Ford also exhibited fruit of two little-known varieties of Apples—the White and the Red Gillyflower, the latter quite distinct from the Cornish Gillyflower. A seedling Apple was exhibited by Mr. Willson, of Whitchy, which the Committee did not consider of sufficient merit to secure an award. Mr. Miles, of Wycombe Abbey, exhibited fruit of the highly-ornamental Solanum betaceum, and a dish of Lemons.

Mr. Meredith, of Garstang, sent a basket of Muscat of Alexandria, Alicante, and Lady Downe's Grapes, of great beauty, exhibiting much skill both in culture and keeping, the fruit being of great merit in every respect. To these a special certificate was awarded. Mr. Fowler, of Harewood, sent a dish of Muscat of Alexandria Grapes from an old vine eighty years old, now existing in the garden there, and which annually bears between four hundred and five hundred bunches. The fruit exhibited had been ripe since September, and was shown in so good condition as to receive a special certificate.

Mr. Gilbert, of Bury, near Stamford, sent a fruit of true Smooth-leaved Cayenne Pine, produced on what is called the cutting-down principle. Mr. Sharpe, of Taiglemere, Guildford, sent a Pine Apple from Bahia, the flavour of which was considered good, but as the fruit was long over-ripe, it was evidently much gone.

Mr. Shephard, of Woburn Park, sent a cross between Brussels Sprouts and Conch Tricolor, which did not meet with the approval of the Committee. Mr. Melville, of Dalmeny Park, sent four examples of his Imperial Hybrid Scotch Grease, which was highly commended by the Committee as a valuable winter and late spring vegetable. Messrs. Carter & Co., of Holborn, exhibited a collection of five varieties of Beet, and thirty-four varieties of Potatoes, grown in their trial grounds at Forest Hill.

FLORAL COMMITTEE.—Rev. J. Dix in the chair. On this occasion prizes were offered for the best nine Ivies in pots. There were three exhibitors—namely, Mr. C. Turner, of Slough; Mr. William Paul, of Waltham Cross; and Messrs. E. G. Henderson & Son, of St. John's Wood. Mr. Turner sent very recently trained plants beautifully clothed with foliage, trained for the most part as tall coes. The plants were Hedera Helix major, with small, silvery, veined leaves; H. Helix minor, with still smaller leaves, but otherwise resembling those of the preceding; H. marmorata minor, with small leaves marked with pale yellow; H. elegantissima, with small foliage irregularly bordered with rose colour and yellow; H. grandifolia arborescens, a large-leaved tree-ivy; H. grandifolia latifolia maculata, the leaves extensively mottled and splashed with cream yellow; H. algeriensis, with large, vigorous, pale green leaves; H. lucida, with beautiful, shining, dark green leaves, but bright green near the principal veins; and H. lobata major, with very distinctly lobed foliage. Mr. W. Paul had H. latifolia maculata; H. Kewiana, a most valuable dark-leaved kind; Kewiana arborescens, having a stem like a tree; H. japonica, the leaves variously edged and marked with white or pale cream colour; H. caucasiensis aurea, with some of the leaves entirely yellow, others with but a small patch of green, whilst others, again, are entirely green, but a charming and most effective variety; H. algeriensis variegata, with white-variegated foliage; H. rhombica variegata, the leaves small, with a narrow white edging; H. arborescens lacinata lutea, the berries still in a green state; and H. taurica, a very neat small-leaved kind. From Messrs. E. G. Henderson came H. Helix rhomboides, H. algeriensis arborescens, H. japonica variegata, H. caucasiensis marmorata; H. dentata, apparently of vigorous growth, and having large leaves; arborescens alba lutescens, a fine yellow variegated kind with rather small leaves; arborescens latifolia striata, with dark green foliage, blotched, splashed, or marked with broken streaks of golden yellow; H. Helix unguiculata alba robusta, edged more or less broadly with cream white; and H. Helix minor marmorata elegans, with minute

marbled leaves tinged with red. Messrs. E. G. Henderson also contributed a very extensive and interesting collection, containing many beautiful and curious varieties. The first prize was awarded to Mr. Turner, and the second to Mr. W. Paul. A third prize was given to Messrs. E. G. Henderson.

Prizes were also offered for the best and second best collections of nine hardy Conifers. Messrs. Veitch, who were the only exhibitors, had the first prize for the following—viz., *Cryptomeria elegans*, very handsome; *Sciadopitys verticillata*; a fine specimen of *Thujopsis dolabrata*; *Picea magnifica*, with glaucous foliage, and branching horizontally; *Picea bracteata*; *Retinospora plumosa*, filiform, and obtusa nana aurea, the last of dwarf compact growth, and having beautiful golden variegation; and *Juniperus rigida*. Messrs. Veitch sent, in addition, *Retinospora lycoptoides*, very beautiful, resembling, as its name implies, a *Lycopodium*; *R. obtusa aurea*, *Thujopsis Standishii*, *Thuja Veruciana*, cinnamon-coloured, and *Abies polita*.

Of Orchids, Messrs. Veitch sent a magnificent collection, in which were fine specimens of *Cypripedium villosum*, *Phajus irroratus*, *Cattleyas*, *Lycaste Skinneri*, *Laelia anceps* with ten spikes, *Scaccolabium giganteum*, with two very fine racemes; *Angraecum sesquipedale*, *Barkeria Skinneri*, *Odontoglossum coriartum*, *Warneri*, *pubellum*; *Cypripedium calceolatum*, *Griffinii*, *Parlatorei*, *Parlatorei*, also exhibited a magnificent collection, most conspicuous in which was *Laelia anceps Barkeri*, with a score of spikes of its richly coloured flower, this noble specimen filling a pan about 2½ feet in diameter; *Calanthe vestita rubra*, with a very fine spike; *Odontoglossum cristatum*, *Oncidium leucocanthum*, *Calanthe vestita rosea*, *Calanthe Veitchii*, with two fine spikes and a smaller one, most beautiful in colour; *Laelia furcacea*, very splendid in colour; *Odontoglossum Alexandræ*, with a noble spike of large and beautifully-marked flowers; *Lycaste Skinneri*, very fine; *Oncidium leopoldinum*, rich brown with a yellow lip, very striking; *Cypripedium pubellum*, with eight flowers, very fine and rich in colour; *Laelia alba* and *L. autumnalis*; *Scaccolabium*; *Oncidium Kranzianum*, with one flower, but that 3½ inches across, and extremely rich in colour.

Mr. Williams, of Holloway, sent a large specimen of *Ansellia africana* with large and handsome spikes, *Angraecum eburneum* virens, also a fine specimen with five spikes, *Odontoglossum luteum purpureum*, *Angraecum sesquipedale*, *Cypripedium biflorum*, and *Bolbophyllum nigrescens*; also cut flowers of fine varieties of *Laelias*, *Cattleyas*, and *Lycaste Skinneri*.

Mr. Burnett, gardener to W. Terry, Esq., Peterborough House, Fulham, exhibited *Angraecum sesquipedale* with very fine flowers, white, and like waxwork.

Mr. Parsons, Daneshury Park, sent a very fine specimen of *Odontoglossum Rossi* with six blossoms. From Mr. Wilson, gardener to W. Marshall, Esq., Clay Hill, Enfield, came also a collection of beautiful cut blooms of several varieties of *Cattleyas*.

Messrs. Veitch exhibited along with their Orchid collection a fine plant of *Lapageria alba*. Mr. Williams, of Holloway, had a collection of his very ornamental hybrid *Solanums* loaded with fruit, but this, not being as yet sufficiently coloured, the plants were not so effective as they will be hereafter, show as some of them were. Mr. Green, gardener to W. Wilson Saunders, Esq., Longleaze, contributed a small collection of interesting plants, among which were *Cissus porphyrophylla*, *Dieffenbachia Wallichii*, an *Anthurium* with deeply-lobed leaves, and another of similar character, but with very narrow lobes; *Maranta setosa*, with very handsome foliage shining like silk, dark green; *Anemone capensis*, with Parsley-like foliage, and long-stalked pale lilac flowers; *Philodendron crispipes*, remarkable for the moss-like covering of the leafstalks; and a fine variety of *Odontoglossum Cervantesii*. Mr. Turner sent baskets of Mrs. Headley, Golden Tricolor *Pelargonium*, most beautifully coloured.

From Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, came an extensive and fine collection of *Cyclamens*; likewise one of Chinese *Primulas*, with large and finely-coloured flowers, both of the ordinary and Fern-leaved kinds. Mr. Edmonds, Hayes Nursery, also sent a nice collection. Mr. Welch, Parkfield House, Hillingdon, sent a most beautifully coloured *Cyclamen*, named *Kermesium*.

Messrs. Francis, of Hertford, exhibited photographs and a portion of the branches of a seedling *Picea*; and Mr. Aldred, Kilburn, seedling Variegated *Pelargoniums* and a seedling *Primula*.

From Mr. W. Paul came a small collection of *Laurels*, among which were *Cerasus laurocerasus rotundifolia*, with roundish obovate leaves; *C. colchica*, which has been frequently noticed in these pages as a very desirable kind; *C. laurocerasus pinnatifida*, with very small and narrow lanceolate leaves, and a seedling variety just the opposite, having remarkably large leaves. Messrs. E. G. Henderson sent, in addition, a small collection of *Camelias* with variegated leaves.

First-class certificates were awarded for the following:—To Mr. Welch, Hillingdon, for *Cyclamen persicum kermesium*; Mr. Wilson, gardener to W. Marshall, Esq., for *Cattleya Trianae*, *Atlanta*, *Cattleya Trianae*, *Venus*, *C. Trianae* lo, and *C. Penelope*; and to Mr. Denning, gardener to Lord Lonsborough, for *Oncidium leopoldinum*. Second-class certificates were awarded to Mr. W. Paul, for *Cerasus laurocerasus rotundifolia*. Special certificates were awarded to Mr. Wiggins, gardener to W. Beck, Esq., for a collection of *Cyclamens*, and for a collection of *Primulas*; Messrs. Veitch, collection of Orchids; Mr. Denning, gardener to Lord Lonsborough, for *Laelia anceps*, *Laelia furcacea*, and a collection of Orchids; to Messrs. E. G. Henderson,

for a collection of Ivies; to Mr. Terry, gardener to W. Burnett, Esq., Fulham, for a specimen plant of *Angraecum sesquipedale*; to Mr. Williams, Holloway, for a collection of Orchids; to Mr. Edmonds, for a collection of *Primulas*; and to Mr. Parsons, Daneshury Park, for *Odontoglossum Rossi*.

GENERAL MEETING.—J. Bateman, Esq., F.R.S., in the chair. After the election of twenty-one new Fellows, and the announcement of the Committee awards, the Rev. M. J. Berkeley, in addressing the meeting, directed attention in the first place to *Anemone capensis*, from Mr. Wilson Saunders's garden, which, he said, had a curious suffrutescent habit; and he took the opportunity to mention what he supposed to be a mere variety of *Anemone apennina* called *A. handa* now in flower at Chiswick. *Philodendron crispipes*, from the same gentleman, was the next subject of remark, and it was stated that the curious covering of the leafstalks, which might be supposed to be of the nature of adventitious roots if examined attentively, partook more of that of leaves. *Cissus porphyrophylla* was the next plant which came under notice, but though generally believed to be a *Cissus*, it was extremely like a *Piper*. It had never yet, so far as he was aware, been known to flower in this country. Messrs. Francis & Co. had sent part of a branch of the usual form of *Picea lasiocarpa*, and of a seedling from it like *P. nobilis*, but in the absence of cones it was almost impossible to distinguish *Conifers* with certainty, though one of the committee men stated he was able to do so with considerable certainty by scent. It was, however, certain that, as stated on a previous occasion, the leaves of young plants differ from those of plants which are mature, and the probability was that the difference observable in the seedling was due merely to its being a young state of *Picea lasiocarpa*. The colour of the *Conifers* exhibited by Messrs. Veitch then claimed attention, and it was remarked that the brownness they exhibited was not uncommon at this season, and though nothing certain was known as to the cause, he believed the change in colour to be owing to an alteration in the chlorophyll.

Mr. Berkeley next drew attention to a *Parnassia* brought by Mr. Earley, which, in consequence of the manure having been mixed with the soil near the surface, instead of being worked down into it, had turned aside laterally when it came to the surface; and Dr. Voelcker, in connection with this subject, stated at the Scientific Committee that where liquid manure had been applied he knew an instance of *Beetroot* curling up to the surface instead of descending.

With regard to the fruit shown, his impression of *Solanum betaceum*, or *Guisano*, was that it was beautiful and quite as good as a Brinjal, although one of the Committee had compared it to putrid oysters. There was also a kind of *Pine Apple* from abroad, which, to his mind, was incomparable as regards flavour. In conclusion, Mr. Berkeley referred to Mr. W. Paul's *Laurel* which received a certificate, as likely to be extremely useful and a great improvement on the common *Laurel*, the fault of which is that it is so apt to become straggling, whilst the new one appears to be more compact.

Mr. Bateman regretted that the dingy afternoon did not permit of the full beauty of the Orchids being appreciated, but they were exhibited in far greater beauty, and, indeed, in far greater number than at any previous meeting so early in the season. Five-sixths of them belonged to the cool-house section—that is, those from Mexico and Peru, although there were some notable exceptions. Mr. Bateman then reviewed the most remarkable of these exhibited, especially noticing the cut bloom of *Cattleyas* which came from Mr. Marshall's garden; but these, beautiful and distinct as they were, only formed a small portion of the varieties known, and which had become so numerous that he (Mr. Bateman) considered they ought to have some special encouragement, and he had therefore determined to offer a prize of £5 for the best collection of cut *Cattleyas* shown at the first January meeting next year, on the condition that the blooms should become the property of the Society for distribution among the ladies.

After noticing *Ara* *arantiana* and one or two more Orchids, Mr. Bateman said he had himself had experience of *Conifers* becoming brown in winter, and cautioned gardeners against being too hasty in cutting down or taking up plants exhibiting such symptoms. After expressing his satisfaction that the change of the day of meeting, from Tuesday to Wednesday, had been attended with no diminution in the number of plants exhibited, nor in the attendance at the meeting, the Chairman closed the proceedings by announcing that the next ordinary general meeting would take place on February 16th.

It may be useful here to add, as the Society's schedule is not set yet generally in the hands of the gardening public, that at the February meeting prizes are offered, in addition to certificates for New Plants, Flowers, Fruits, and Vegetables, for the following subjects—viz., in Class I, for six Chinese *Primulas*, distinct; in Class 2, for three *Dielectric*, in bloom; in Class 3, for six *Lycastes*, in bloom; in Class 4, for winter dessert of Apples and Pears, three dishes of each (prizes offered by the Rev. G. Kemp); in Class 5, for dessert Apples, three dishes; and in Class 6, for dessert Pears, three dishes. The above classes are open both to nurserymen and amateurs.

ARE SPARROWS DESTRUCTIVE TO GARDEN CROPS?—"Nature" reports the results of some interesting experiments made by

Professor Giebel, of Halle, with the object of ascertaining the correctness of the popular notion that sparrows are destructive birds, feeding chiefly on Grapes and stone fruit. He found on examining the intestines of seventy-three young sparrows, between the 18th of April and the 24th of June last, that forty-six of them had fed exclusively on insects (beetles, caterpillars, &c.), and seven only exclusively on stone fruit, the rest having all more or less fed on insects. An examination of forty-six old sparrows gave similar results; three only were fruit-eaters and the rest chiefly insect-eaters.

### ENTOMOLOGICAL SOCIETY'S MEETING.

THE first meeting of the present year was held at Burlington House, on the 3rd of January, the President, Mr. H. W. Bates, being in the chair. The Secretary announced that Messrs. Schiodte, of Copenhagen, and Von Siebold, of Munich, had been selected by the Council to fill up the vacancies in the list of honorary foreign members. A fifth part of the "Transactions" of the Society, published in 1869, was upon the table.

Mr. F. Bond exhibited specimens of the large Locust, *Acrydium peregrinum*, of which other examples had been previously exhibited; one specimen had been taken at Brighton, and as many as thirty in the neighbourhood of Plymouth. It was remarked that this particular species is not a native of Europe, but of the East, and hence the singularity of so many individuals having found their way to this country. The Rev. Leonard Jenyns exhibited a species of *Archamia* which had been coined by a Hottentot (proof of the filthy habits of these people), and also an apparently undescribed species of *Elatér* of small size found floating in a cup of tea.

Mr. Hewitson exhibited a magnificent collection of Butterflies, captured by Mr. Buckley on the eastern slopes of the Andes, and in the valley of the Napo, in Ecuador. Not fewer than 136 new species were contained in the collection although Mr. Buckley had only been fourteen months absent from England. Mr. Buckley stated that a few only of the species had been taken on both sides of the Andes.

Professor Westwood exhibited a singular specimen of the Orange-tip Butterfly (*P. Cardamines*), from the collection of Dr. Boisduval, of Paris, in which the fore wings exhibited a mixture of the colours and markings of both sexes. Mr. Quaritch, bookseller, exhibited a specimen of what he misnamed a bookworm, which proved to be a species of *Lepisma*, and requested information as to its history and the means for its destruction. Professor Westwood in reply stated that the bookworm is the larva of *Anobium striatum*, and that a committee having been appointed to investigate its ravages, a report had been recently published by the authorities at South Kensington giving all the required particulars.

Mr. A. Müller exhibited photographs of three specimens of *Alax parvulus* in which the striæ of the elytra were distorted, also of a *Thanasius formicarius* with the fasciæ of the elytra confluent.

The following memoirs were read—1. Descriptions of new British species of May Flies, Ephemeridae, by the Rev. A. Eaton. 2. Descriptions of new Australian species of Lucanidae, by Professor Westwood. 3. The Genera of Coleopterous Insects, treated chronologically, in which the works of entomological writers from 1795 to 1810 were reviewed with reference to the establishment of new genera of Beetles. 4. A Monograph on *Catantopidae*, an extensive genus of Weevils inhabiting New Holland, of which a large number of new species had been recently brought to this country by Mr. Du Bonlay, from Western Australia.

### ACCLIMATATION OF FOREST TREES.

CONSIDERABLE advance has been made of recent years in France in introducing hardy foreign trees and shrubs suitable to the climate; and with a fair amount of success, many natives of warmer climates being found to stand the winters in the southern departments. The *Eucalyptus globulus* has given the best results in the department of the Var, where it has resisted the malign influence of the mistral or north-west wind. It is described as growing with ten times the rapidity of the Oak, and being remarkably well adapted for the re-planting of denuded mountains. The Bamboos introduced at Tours, Mâcon, and Angers, have prospered marvellously, and have survived not only the last winter, but the much more severe cold of the previous season. Several species of Bamboo flourish even in the climate of Paris in the open air, where they may be seen in the Gardens of the Acclimation Society in the Bois de Boulogne, and in several private gardens.—(Nature.)

**SHADE TREES.**—Some of the principal qualities that a tree should possess to render it suitable for street planting are the following:—1st, A compact stateliness and symmetry of growth as distinguished from a wide-spreading or pendulous form. 2nd, An ample supply of expansive foliage, of early spring verdure, and rich and varied in the colours and tints assumed during

the ripening of the leaves in autumn. 3rd, Healthiness. 4th, Cleanliness, characterised by a persistency of foliage during summer, freedom from fading flowers, and exemption from the attacks of insects.—(Horticulturist.)

### PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

*DALIA IMPERIALIS* (Imperial Dahlia). *Nat. ord.*, Compositae. *Lim.*, *Synpencisia Superflua*. This magnificent plant is a native of Mexico. It is a shrub in size, from 12 to 18 feet high. Flowers white, base of petals crimson.—(Bot. Mag., t. 5813.)

*NERONIA INDICA* (Indian Jerdonia). *Nat. ord.*, Didymocarpaceae. *Lim.*, *Didymamia Angiosperma*. Native of the Neilgherry Hills.—It is a small stone plant, with dark leaves regularly stained with white; flowers pale, like lilac.—(Ibid., t. 5814.)

*PHALANOPSIS PARISHII* (Rev. C. H. Parish's Phalanopsis). *Nat. ord.*, Orchidaceae. *Lim.*, *Gynandria Monandria*. Native of Burmah.—Flowers white, with purple-blotched lip. Very small.—(Ibid., t. 5815.)

*ANTIGONON LEPTOPTES* (Slender-stemmed Antigone). *Nat. ord.*, Polygonaceae. *Lim.*, *Monandria Octandria*. Native of Mexico and West Indian Islands.—A slender stove climber, rivaling Bougainvillea. Flowers crimson.—(Ibid., t. 5816.)

*CUCURBITES ANGUSTIA* (West Indian Gherkin). *Nat. ord.*, Cucurbitaceae. *Lim.*, *Monoclea Triandria*. Probably a native of Africa, though now cultivated in the West Indies.—Commonly found in West Indian pickles. Flowers white; fruit oval, prickly.—(Ibid., t. 5817.)

**ROSE Princess Christian.**—"This has been so frequently before the public that we need do no more, in this place, than describe the colour of the flowers, and the character of the plant. The colour ranges from deep salmon to rose peach, according to the age of the blossoms, and holds on clear and bright to the last. There is a peculiar and beautiful gloss on the face of the petals which the pencil of the artist cannot portray, and which gives it distinctness. The flowers are very large, double enough, globular in the bud state, and finely cupped when expanded; and it gives forth these flowers continuously and abundantly from June to November. The growth is robust, the constitution hardy, and the foliage and habit distinct and of a pleasing character.

"This promises to be a good exhibition Rose when taken in a young state, and a grand Rose for the garden at all times. Mr. William Paul, of Waltham Cross, is the introducer of this novelty, which, we learn, will be distributed from his nurseries in May next. Three first-class certificates have been awarded to the Princess Christian during the year 1869—one by the Royal Horticultural Society, one by the Royal Botanic Society, and one at the Crystal Palace Rose Show."—(Florist and Pomologist, 3 s., iii., 1)

### FLUE HEAT.

IS reference to heat by flues or pipes, the subject of late articles in your Journal, I will venture a project of my own.

I intend to construct a hot-air chamber (a brick-and-tile oven), heated by a furnace beneath the chamber, with air-tight furnace and ash-pit doors, save ventilating valves, to regulate the slow combustion of coke, the fuel I shall use. My intention is to conduct the heat, or hot air, from the chamber or oven through a vinery, like water, by piping perforated at distances of 6 feet for the escape of heat into the vinery, so as to mingle with and rarefy the air of the vinery, ventilated slightly by top lights, so as to keep up a gentle interior circulation of warm air. My purpose, of course, is to procure heat by a continuous stream from the chamber or oven and slow-combustion furnace (the smoke being carried off by its own chimney) without smell or smoke, and to supersede water boilers and pipes, which at best are troublesome.

I may or may not succeed, but I shall try to conduct heat or hot air on the hypocaust principle, and perhaps some horticultural engineer may, if practicable, adopt the suggestion.—READER.

For a small vinery we should be quite content with such a chamber heated by a furnace, as you propose, acting on the Polmaise system. We do not see how you are to supersede "troublesome pipes," if you are to use pipes to conduct the hot air from the chimney to the farther end of the house. We are a little doubtful of the proposed plan of perforating these pipes every 6 feet to let the heated air into the house. We fear the heated air would escape at the first and second per-

forated places. We have tried a little in the same way, but we would prefer one opening, at the farther end of the piping from the chamber. You say nothing of the heated air being fresh. This you could secure by taking a small pipe to the bottom of the chamber from the external air. Without perforations, if the pipe become hot, it would heat the air near it and thus prevent a stagnant atmosphere. You may moisten this heated air as it comes out of the chamber. If you depend merely on the air of the house there is one suggestion more we would make—take your heating pipe from as near the top of the chamber as possible, and have an opening nearly as large close to the bottom, that cold air may enter as the heated air goes out. If you use perforated pipes, be so kind as to let us know the results.]

### BOILERS AND BOILING.

I did not expect to convert Mr. Woodfield to my own views, and, therefore, am not surprised that he does not agree with my reasoning. I think, however, the discussion of the subject is likely to do good, as many persons have very mistaken notions as to the motive power in heating by an ordinary hot-water apparatus, and I am glad that Mr. Woodfield agrees with me in thinking it well to ventilate the subject.

To return once more to the question as to heat applied at the top of a boiler, I do not rely in the least on conduction from one particle of water to another. I know the conducting power of water to be very small, but your readers must bear in mind that the water in a heating apparatus is in constant circulation, and when in motion the particles of water are constantly changing position; it is not true, then, that only a small layer of water is acted upon by the upper surface of a saddle boiler, because a fresh current is constantly supplied, and the heat is constantly acting on fresh particles. The law of conduction of heat from one particle of water to another hardly comes into play at all, as I consider the water is heated by actual contact with the heated sides of the boiler, and therefore by conduction from the iron itself. Mr. Woodfield has mistaken my meaning in thinking I meant that the laws of conduction, convection, or radiation were different in one case to another. I may not have expressed my meaning carefully enough; I only meant that the conditions under which the water is heated are altered. In an ordinary boiler by the side of a fire the water is in a state of rest, and if heat is applied by a flue on the upper surface it has to act through a stratum of air, unless the boiler is sufficiently full for the water to touch the top, in which case any heat from the surface would act by conduction alone, and would be very inefficient, but still would have more effect than when the boiler was only partially filled. In a steam boiler heat applied to the surface of the boiler has to act through a stratum of steam, which is a much worse conductor of heat than water, and little better than air; and I have no doubt it is true that if a cylindrical boiler for generating steam were entirely surrounded by fire it would evaporate very little more than if only the under surface were exposed to the action. The heat applied at the top of the boiler, therefore, in the three cases acts—in the horticultural boiler directly on the water in motion by direct conduction from the iron; in the second through a stratum of air, which is a very bad conductor of heat; in the third through steam.

Again, I do not consider that water in a horticultural boiler is heated by convection in the same way as water in a boiler by a kitchen fire or a kettle on the fire top, because in the case of the kettle the heated water from the bottom and sides rises, and cold water falls to take its place, till all is heated to the same degree. In a horticultural boiler the heated water, as I pointed out in my last, rises directly and passes off up the flow pipe, cold water being supplied by the return pipe from below; and as, in an ordinary saddle boiler, the sides and top seldom contain more than a 31-inch stratum of water in a constant state of motion, I do not think that water ever descends from above as in a kettle to supply the place of heated particles of water that are rising. It is my belief, which Mr. Woodfield has not at all shaken, that the water in a horticultural boiler is almost entirely heated by direct conduction from the iron—a first-class conductor of heat—and not by convection or conduction of heat from one portion or particle of water to another; and I am still of opinion that the heated exterior surfaces of a boiler have nearly as much effect as the interior.

The argument from the box 6 feet high and 1 foot square heated from above or below has very little to do with the case. I am perfectly aware that only the upper stratum of water

would be heated, or at all events that it would take a long time for the water to be much heated by conduction if the fire were applied in such a case as this to the top only; besides which, as there could be no current of air to the bottom of the fire, the heat from the fire itself would be very feeble. I have had this argument brought before me often in talking the matter over, and I rather expected it would be brought before me again. I simply answer, it does not apply in the least to horticultural boilers, but it does to steam and ordinary boilers. Mr. Woodfield rather begs the question when he says all scientific men agree with him, and tries to put me in the invidious position of asserting my own individual opinion in the face of science. All I endeavour to maintain is, that there is a preconceived notion, contrary to scientific facts, that the heat applied from above in horticultural boilers is of no use, nearly all experiments having been made on water in a state of equilibrium and not in motion.

If the motion of water in a small pipe is as free from friction as in a large pipe, all I can say is, that the laws of hydrostatics are changed since I was at college some twenty years ago.

Next about the comparative advantages of 4 and 2-inch pipes. It will take 1000 feet of 2-inch pipe to do the work of 500 feet of 4-inch pipe, as far as the radiation of heat is concerned. The water in every foot of the 2-inch pipes is cooled down by radiation twice as fast as the water in the 4-inch pipes in giving out the same amount of heat, and therefore the whole water in the 1000 feet of 2-inch pipe is cooled down four times as much as in the 4-inch pipe. I am aware that the 500 feet of 4-inch pipe will contain twice as much water, but I maintain that the water after traversing 1000 feet of 2-inch pipe returns to the boiler much colder than it does through 500 feet of 4-inch pipe; and though the rapidity of the flow is increased, yet the water remains a shorter time in the boiler, and as it returns colder it requires a greater amount of fire to keep up the heat, though it will be more quickly heated in the first instance, and for night work there can be no comparison in the efficiency of a 2-inch and a 4-inch pipe.

Now, anyone who has very much to do with boiler fires must know that when it is necessary to keep up a bright fire there is much more waste of heat through the heated gases passing up the chimney, and I am certain that it will require more attention to the fire, and a greater consumption of fuel, to keep up the heat in a boiler when heat is radiated off through 1000 feet of 2-inch pipe than it will to keep up the heat when it is radiated off through 500 feet of 4-inch pipe. The specific heat of water—that is, its capability of containing heat, is greater than that of any known substance; the specific heat, therefore, of 500 feet of 4-inch pipe is double that of 1000 feet of 2-inch piping. Water parts with its heat slowly, but gives off its heat more rapidly when at a high temperature than when at a lower point; as, therefore, the water in passing through 2-inch pipes gives off its heat, it becomes less efficacious in heating a house according to the length of pipe which it has traversed. So that I cannot see any one advantage that a 2-inch pipe has over a 4-inch one; and the larger the quantity of pipe there is to deal with the greater is the disadvantage of the 2-inch over the 4-inch pipe. A cubic foot of water at 60° weighs about 61 lbs. 10 ozs.; when heated to boiling point it weighs about 55 lbs. 5 ozs. But water gets more rapidly light the nearer it approaches the boiling point: Thus 1000 parts of water at boiling point when cooled 30° F. below 212° become 980, at 65° 960. Now, as the difference of weight between cold water and heated water represents the force of the current or motive power in pipes, and as 12 feet of 4-inch pipes contain about a cubic foot of water, while it takes 48 feet nearly of 2-inch pipe to contain the same amount, I consider the motive power in the larger pipe to be the greater.

Mr. Woodfield says with regard to the radiation of heat from glass in windy weather, it is better to take into account the cold air entering by crevices, and provide more pipe accordingly. I consider the air entering through the laps of glass has very little to do with the question. It is a very common expression to speak of cold striking through, as if cold were a definite thing of itself; but I need hardly say that cold is an indefinite term, and when we speak of one thing being colder than another it merely means that it contains less heat. Now, glass houses are cooled down chiefly by radiation—that is, the heat inside is given off to heat the air in contact with the glass outside, and it is here where wind plays an important part. Air is a very bad conductor of heat, but heat radiates very rapidly through it, and on a windy night a fresh layer of colder air is constantly coming in contact with the glass and takes

the heat away; on a still night the air next the glass is heated by the radiation, and prevents the glass from cooling so rapidly.

Mr. Woolfield is of course correct in saying it is always better to have plenty of piping, and I have no doubt Mr. Hood's rules may give a sufficiency. I only pointed out that the rules given laid down certain things as fixed quantities which must in their nature be constantly varying, such as 125° (the excess of the temperature of the pipe above the surrounding air), and again 222, the number of feet of air raised 1° per minute for every foot of pipe, &c. These quantities must necessarily depend on the heat of the pipe, which cannot be constant, and the radiating power of the external air, which also cannot be constant. I will not, however, enter upon this topic any more, and must apologise for having trespassed so much on the

patience of those of your readers who have followed me thus far. At all events I am glad that Mr. Woolfield allows it does good to turn the heated gases over boilers, although on the lesser ground of preventing loss of heat. I think many of your readers will agree with me that it also adds to the heat.—C. P. PEARCE.

P.S.—I forgot to answer Mr. Woolfield's query about the size of the boiler I am using. It is an ordinary saddle, 18 inches high, 22 wide, and 24 long, exterior measure; it is about 14 inches high in the interior, 14 inches wide, and contains nearly 6 feet interior surface, and about 7½ exterior, including the top. The sides being about 7 inches in vertical height before the curve commences, would give 4½ square feet of side flue without the top.

### PARANEPHELIUS UNIFLORUS. Papp.

For this interesting plant, here figured for the first time, our gardens are indebted to Mr. Wilson Saunders, to whom seeds of it were sent by Mr. Farris, from the mountains of Peru. It

is perfectly new to this country, and will, no doubt, become a permanent ornament in plant collections. The plant belongs to the natural order Composite, sub-order Tubuliflorae. Its generic character is flower heads many-flowered, heterogamous. Florets of the ray uniseriate, ligulate, pistillate, with the five long sterile filaments protruding; those of the disk tubular, hermaphrodite. Involucre of many series of imbricated scales, the interior ones narrowest. Receptacle shortly hairy. Corollas villous; those of the ray ligulate, with a long tube and oblong three-toothed ligula; those of the disk tubular, the limbs five-parted, in oblong lobes, shorter than the tube, erect. Style of the disk tumid at the base, deeply two-cleft, with long revolute, densely-hispid branches; that of the ray with short branches. Seed-nut oval furrowed, glabrous, concave at the apex, swollen at the base. Pappus in many series; setae, equal, rigid, hispid.

There is but one species of this genus, that which we now figure. It is a dwarf herbaceous perennial, growing close to



the ground, and forming with its leaves a rosette on the surface, in the manner of *Cnicus acutis* of our pastures and meadows, or the *Carlina acutis* of our herbaceous collections.

The leaves are of a dark green colour on the upper surface; the under surface white with pale green veins, contrasting well with the fine, large, golden-yellow composite flowers about 3 inches across, giving a lively appearance in midwinter when other flowers are scarce.

The seeds are sown early in spring, thinly in a well-drained pot, and placed in a cool pit near the glass and moderately watered; as soon as the plants are large enough they are potted singly in small pots, placed again in a pit, and allowed plenty of air. When the plants become established, as soon as the pots are well filled with roots, they are to be repotted into larger pots in a mixture of good turfy loam and peat, adding a small portion of well-decayed manure, after which they are placed in the open garden fully exposed to sun and air during the summer months. In autumn they are to

be removed to a cool airy greenhouse near the glass, where the flowers soon begin to expand, and last a considerable length of time in perfection.

This plant has, we believe, not hitherto been known in Eng-

land in a living state, and it is now in full bloom in the garden of Mr. W. Wilson Saunders, at Reigate.

## NOTES AND GLEANINGS.

THE GLADIOLUS EXHIBITION at the Royal Horticultural Society's Meeting, on the 17th of August, promises well. Intending subscribers to the fund for prizes should at once declare their intention to Mr. Richards, Royal Horticultural Gardens, South Kensington, so that the amount of the prizes may be determined. A prize for the best six English seedlings is intended. The following subscriptions are promised:—

£ s.		£ s.		£ s.
Mr. Vincent Stuckey, Langport	1 1	M. Eugène Verdier & Sons	1 1	
Mr. Marshall, Taunton	1 1	M. Charles Verdier	2 0	
M.M. Vilmorin-Andrieux & Co.	5 5	Messrs. Kelway & Sons	2 2	
M. Souchet	6 0	Messrs. Paul & Son	2 2	
		Mr. Buryard	1 0	

It has been stated in some of the daily papers that a LEGACY of £2000 has been bequeathed to the ROYAL HORTICULTURAL SOCIETY, but we cannot learn that it is known officially.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

THE time has now arrived to commence operations in earnest, and one of the first steps is to plan out every inch of ground, if possible for the whole year. Laths should be written upon and placed at the heads of the quarters, descriptive of the kind of crop, the manuring, and what crop is to follow. It is necessary, also, in order to follow up a systematic rotation of crops, to keep a cropping-book corresponding with the labels. Most persons will have laid-in their stock of seeds for the year. The remaining stock of last year should be thoroughly examined, and the seeds deemed safe for the current season reserved, and some mixed with the new samples. A little *Cauliflower* seed and a pinch of Brown Cos *Lettuce* should be sown in boxes and placed in a house at work; also some White Spanish and Portugal *Onions*, to be transplanted on highly-manured ground. Sow a little *Parsley*, some early dwarf *Cabbage* of the Vanar or Nonpareil varieties, a little Round *Spinach*, and a pinch of Early Dutch *Turnip* on a warm slope. A plot of ground should be forthwith appropriated to slopes. It is strange that gardeners do not avail themselves to a larger extent of the great advantages offered by sloping surfaces. The slopes should, of course, run east and west, and are most convenient when about 3 feet 6 inches wide. They should, if possible, be near the frame ground, as many of the crops grown upon them, such as Radish, Horn Carrots, and early Lettuces, will require occasional covering with litter and frequent attention. Slopes of this kind, after carrying their spring and early summer crops, will be suitable for autumn ones, more especially for Endive and autumn Carrots, or for raising the stock of winter Lettuces. The sooner *Asparagus* beds are manured and soiled the better. Plant *Horseradish*, *Sea-kale*, and *Jerusalem Artichokes* as soon as possible.

### FRUIT GARDEN.

FOLLOW up nailing and pruning except in the case of Fig and Apricot trees; cover the latter in good time to protect the blossom. When that is to be readily distinguished finish the pruning of these also. Make cuttings of choice Gooseberries, Currants, &c., taking care to pick out the buds at the lower end of the shoot in order to avoid suckers. Let all Apple trees infested with insects have a thorough cleansing and washing, either with Gishurst compound or with soap and hot water. Apple and Pear trees may even be syringed with water of the temperature of 100°. A few Strawberries may now be pushed forward, but do not drive them too fast or the blossoms are apt to become blind. During mild weather those in frames for succession should have plenty of air in the day, but at night the lights should be put on in order to secure them against frost, and as soon as the blossom buds of the Apricot can be distinguished, the eggs of the caterpillar which so much infests it in the leaf should be hunted for and destroyed. They are deposited in circular groups on the branches, are about the size of a Parsnip seed and look somewhat like it, having the appearance of being pasted.

### FLOWER GARDEN.

Those who have alterations to accomplish this spring in the way of planting and ground work must now lose no time. In planting large shrubs it is an excellent practice to half fill the

holes intended for the plant or tree with the rakings of the pleasure grounds, which may be reserved in heaps in back places for that purpose. This imparts to the plants an unusual degree of luxuriance, and of a most enduring character. Re-arrange masses of what are known as American plants; some of the delicate Azaleas, &c., are frequently overgrown and injured by the grosser *Rhododendrons*. Biennials may be planted in flower borders or beds. Look over bulbous plants; stir amongst them and protect them if necessary. Grass lawns will now be much benefited by a thorough rolling, as also gravel walks. Examine all belts at the outskirts of the kitchen garden or otherwise. Remove deciduous trees where they injure the best evergreens, and introduce Hollies or trees of a permanent character in blanks; stake newly-planted trees carefully, the harm done from want of this is immense. Procure Rose stocks, and plant them in lines in highly-manured ground in the kitchen reserve garden. The Doursault is understood to be one of the best stocks for early Roses. Many collections of Tulips are now so forward that unless protected in some of the ways recommended the results will be serious to the embryo blooms, which, though below the surface, will certainly be more or less injured by the action of the weather. Ranunculus beds may be thrown up in ridges of about 4 inches, so that the lower part of the bed may be allowed to remain undisturbed. By this means advantage can be taken of a fine day, should the weather prove fickle about the 14th of February, as when suffered to lie in this state the surface soil becomes sooner dry, and by simply raking level is immediately ready for putting in the roots. Polyanthus seed may now be sown in pans. Some florists start them in a slight heat, and when up gradually harden them. Look well after Carnations in pots; those on beds will require protection in exposed situations. Attend to preserving cleanliness, watering, &c.

### GREENHOUSE AND CONSERVATORY.

Liquid manures are great fertilisers if they are used in a perfectly clear state. Everyone, therefore, who is desirous of carrying out high cultivation should not only provide a stock immediately, but adopt a plan by which it can always be obtained with ease and comfort. Soot water is, no doubt, of considerable value when clarified, and when mixed with urine and guano water will furnish all that can be desired in this respect. Use it in a perfectly clear state and weak; by the latter is meant clear water merely tinged in colour. Used beyond a certain strength, it will assuredly paralyse the action of the root it was intended to invigorate; used in a turbid state, it will close the soil against the atmosphere, for which it becomes a very poor compensation. All manual operations in the conservatory should, of course, be performed as early in the morning as possible, in order that the family may enjoy their rambles amongst the plants without obstruction, in a sweet atmosphere and on very clean floors. Orange trees in tubs are liable to a black fungus on the leaves, having the appearance of root; this should be thoroughly cleared away at all times, more especially now. Some soap-suds, warm, applied with a sponge are very good, and a little sulphur may be mixed with them. Decaying flowers or unsightly plants should be instantly removed and their places filled with superior articles brought from other departments. This structure, where proper means are allowed, should now be in the highest perfection, and the hybrid *Rhododendrons*, *Camellias*, &c., should make a fine display. Large plants of the above that have been some time in their pots or tubs will require much water—more than people commonly imagine. Use tepid liquid manure. A few of the most forward Azaleas intended for blooming early may now be placed where they can have a temperature of from 50° to 55°. Water carefully when necessary, and in mild weather ventilate freely. Cinerarias require careful attention as regards watering. Do not place them so closely together as to touch one another, and be sure to keep them secure from frost. Chinese Primroses in bloom should be introduced into the conservatory, and others brought on as their beauty fades. The bright yellow Primrose-like blossoms of the hardy *Jasminum nudiflorum* have such a cheerful aspect at this time, when flowers are scarce, that a few plants of it should be kept in pots for in-door decoration; when intermixed with green-leaved plants they have a fine effect. Specimen *Pelargoniums* intended for flowering in May should be placed as near the glass as possible; let the temperature at night be about 50°. *Solanum capsicastrum*, together with *S. pseudo-Capsicum*, and other sorts bearing small, round, bright-coloured fruit, are very useful at this season for decorative purposes. See, there-

fore, that those in conspicuous situations do not suffer from want of water.

—DOVE.

Proceed with repotting Orchids, taking them in the order in which they bud. Keep the plants well elevated, and use plenty of charcoal in lumps of considerable size, fastening the whole at last so that the plants cannot be loosened by agitation. Sphagnum or other moss vegeed on the top makes a very good finish. Keep Stanhopeas very high; indeed, pots are quite unfit for them. Syringe plants on blocks occasionally. Dendrobiums should have a rather dry yet warm atmosphere, and will require watering at the roots.—W. KEANE.

## DOINGS OF THE LAST WEEK

### KITCHEN GARDEN.

HELD the work has been small, owing to the soil being so wet, and having but little ground at liberty to this, trench, or ridge. Ridged-up ground, to be used for early Potatoes out of doors, Peas, Beans, &c., as soon as it is a little drier; very little is gained by sowing when the ground is wet. Took up all the Parsnips, that we might have the ground at liberty for trenching and sowing, and will take up a part of our

Celery that we may have a space ready for cross-trenching, so as to mix the manure of the beds, ultimately to be dug and levelled for the earliest Onions. Of our Celery, all in beds, the man says he has not seen a bolted nor a decayed head this season. We protected the tops a little in the most severe frost, and after the sharpest frost removed every bit of decayed leaf that showed itself. After the end of this month it will often be found that Celery will keep very well, and a long time, if raised carefully with balls, wetted at bottom, and the heads placed rather thickly together, and packed with asbes, &c., to keep them blanching. This plan sets much ground at liberty when it is scarce for what is wanted.

In addition to the usual vegetables forced at this season, and to which reference has frequently been made, we put a barrowload of *Savoy Turnips* in the Mushroom house, placing the turnips in a little short dung, having just a little heat. When the heads have sprung about 6 inches, or a little more, they will be of a yellowish tint, and are very sweet when cooked, retaining the colour at table. We have known many who much preferred them to Sea-kale. No Turnip suits so well as the Swede, as the produce is either more watery or somewhat bitter. With the Swede the flavour is improved by the blanching or growing in the dark. Of course green cuttings could be had in heat if preferred, but we think the blanched are best, and are a greater curiosity. When vegetables are scarce, any farmer who has the Turnip may have a dish every day all the winter by placing some Turnips in a dark warm place. If only one short cutting be taken the Turnips will be little the worse for stock-feeding.

Scirred the surface of the soil among all vegetables under protection, as Cauliflowers, Lettuces, and Endive. Our most forward Cabbages might have been too forward but for the protection of the snow in the sharp frost. Even a north bank of Rose Coleworts are not at all injured.

### FRUIT GARDEN.

In wet days proceeded with pruning the orchard-house trees preparatory to having them thoroughly washed and cleaned, much in the same way as described for the Peach house. We had fresh stakes put in to Raspberries, intending to connect them with two rows of wire, to which to fasten the canes. A few Grapes still remain in the warmest orchard house, and the plants are now becoming thinner and fewer. In one night, the coldest, the leaves of Scarlet Pelargoniums were a little crusted; they recovered, though a few leaves remain a little rusty, but the stems, &c., are all right. We mention this, because the sunk stove kept out frost in other nights in a house 75 feet long, and the roof nearly a plane of glass. Of course, the back wall helped. Even that night, with 29° below freezing, the frost would have been kept out had not our 3-inch funnel or chimney been rather too much clogged up. It took us some time to put the pole down it; after all, the draught is entirely regulated by the ash-pit opening; we would prefer a wider out-pipe, but the 3-inch 9-foot pipe was at hand, and we used it. It does very well if the pole be thrust down often enough. Proceeded with pruning out of doors, and will soon follow with whitewashing to deter the birds, &c. Much planting will have to be done in many places this spring, the ground was so dry in the autumn. In planting for cover and wood, we have had to delay a little; the ground was too wet and adhesive.

### ORNAMENTAL DEPARTMENT.

The mild weather again has brought worm heaps on the lawn, and rolling and cleaning the roller is the quickest way to clear them off. A wooden roller is better for this purpose than an iron one. Smooth green lawns, and clean firm paths, add greatly to the enjoyability of a place at this season. In wet days we overhauled house plants, removing every trace of faded or damped foliage, and, where necessary, stirred and fresh-surfaced the soil in the pots. A few dead or withered leaves in a house take away most of its charm. Commenced striking cuttings of temporary summer residents of the flower garden, and potting other plants that are now small.

All the variegated and Scarlet Pelargoniums will stand a little heat if it can be given to them, and thus small plants standing thickly in boxes, will soon become large plants when in heat and room are afforded. We had no plants that did better last year than those that were placed singly in square pieces of turf—say averaging 3½ inches, and were turned out, turf and all, in the beds, after the turf was full of roots, and the rich fresh fibres coming out all round like the hair of a wig.

We gave plenty of air to Roses, Dahlias, &c., in a pit, where there is a mild bottom heat. The Roses were washed with hot soap water, and then thinly with cyp. sulphur, and root, in soft-soap water, and the shoots have come strong without a sign of fly as yet. We have put a box of variegated Pelargoniums of the florists' kinds in ainery, to which an increased temperature is given. These are young plants of last summer—not cut down in autumn—in 5 and 6 inch pots, the shoots long and rather leggy, and unstopped. From similar plants last season we had a number of early cut blooms, when on finely-grown symmetrical plants a truss of flowers could not have been obtained for months afterwards. Thus treated, many of our other Pelargoniums will bloom almost as early as such old favourites as Alma multiflora, and Dennis's Alma. One great advantage that the florists' and Fancy sections have over all the Scarlet sections, is that the bloom carries so well. Fill a box with your finest scarlets, pinks, mauves, &c., and a ride of fifty or one hundred miles would show you a great number of petals dropped, whilst the florists' section will come out as fresh as when they were put in. For early forcing we think those unstopped rather leggy plants, each with from two to four or five shoots, bloom the best, and yield most cuttings.

Prevention of damp in plants in pits and frames. We have had a number of inquiries on this subject, and we shall return to it. Meanwhile we would say that the best preventive against damp is a free circulation of air; and, again, that is best promoted in winter by having the means of simply heating such places by a small fire or otherwise; and even in this case, or without any mode of heating, damp will be best guarded against by having the bottom of the frame or pit considerably above rather than below the ground level of the neighbourhood, with the ground sloping away from the back and front, so as to let the rain freely escape.—R. F.

### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending January 18th.

DATE.	BAROMETER.		THERMOMETER.		Wind.	Rain.
	Max.	Min.	Max.	Min.		
Wed. 12	30.648	29.559	44	23	40	W. .00
Thurs. 13	29.768	29.659	44	23	39	W. .14
Fri. 14	29.757	29.424	54	28	43	S.W. .02
Sat. 15	29.813	29.678	51	41	44	S.W. .02
Sun. 16	29.810	29.074	49	41	45	W. .00
Mon. 17	30.425	29.374	45	34	45	S. .00
Tues. 18	30.495	30.495	48	31	44	S.E. .00
Mean.	30.619	29.839	47.99	34.86	43.69	.018

12.—Stormy; very fine; clear and fine at night.

13.—Stormy air; cloudy but fine; rain at night.

14.—Clear and fine; cloudy; fine; heavy clouds.

15.—Fine; very clear; overcast; drizzling rain.

16.—Densely overcast; cloudy and overcast; foggy.

17.—Dense fog; heavy and overcast; densely overcast.

18.—Densely overcast; foggy; densely overcast.

### TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

Books (J. W. Hereford), "Kitchen Gardening for the Many." You can have it from our office, free by post, if you enclose five postage

stamps with your address. (T. Long).—The Fruit Manual "only gives descriptions of each variety." "The Science and Practice of Gardening" explains the horticultural proceedings, and details the reasons which should guide them.

**TROPEOLUM TRICOLORUM** (T. S. Moseley).—The index is for the second volume of 1873, and on page 213 of that volume is the culture of *T. tricolorum*.

**TENANT'S RIGHT TO REMOVE A GREENHOUSE AND SHEDS** (B. J.).—We have repeatedly said that, where no relation exists, it is best to have a written agreement as to what the tenant shall be entitled to remove. If such an agreement does not exist, the tenant has no right to remove any plant, shrub, or tree that he has planted. As to a greenhouse, if it attaches to a wall he has no right to remove it, though he may remove it, if it is a movable structure, such as you would require for setting a boiler and forming a chimney, are not removable without the landlord's consent; but all the glasswork of a Paxtonian or other greenhouse structure may rest merely on a layer of bricks, and may be removed at any time, such structure might be heated by a gas or other moveable stove, with an iron tube for a chimney, which would also be removable.

**DIAMANT TRATRE** (*Breche de S. J.*).—We do not know where you can purchase a plant of this Grape. It is cultivated in the garden of the Royal Horticultural Society, at Chiswick. All nurserymen ought to grow it.

**SELECT FLOWERS** (*Anglo-Br.*)—Of *Juncus Chrysanthemum*: Aurantium, Comet, Dr. Masters, Hero of Magdala, James Salter, Nagasaki Violet, Prince Satsuma, Red Dragon, Diamond, and Wizard. *Largely-crested Chrysanthemum*: Leveley, General Shiao, Fingal, General Leveley, General Nugent, John Innes, Jolly Gravelers, Mr. Wyse, Mrs. G. Randle, Prince Alfred, Prince of Wales, Princess of Wales, *Pompeii*: Bob, Golden Aurora, Lilac Cedo Nulla, Lizzie Holmes, Prince Victor, White Trevelan.

**AMERICAN PAPERS** (W.).—Apply to Messrs. Sampson, Low, & Co. Fleet Street.

**CANILLOWERS** IN POTTS.—A. K. V. will oblige some correspondents by naming about a dozen chosen varieties which succeed under pot-culture.

**HYGROMETER** (G. P.).—Many other articles besides the avers of the "animated dot" indicate changes in the humidity of the air, but such indication is not sufficient for the grower; he needs an instrument telling the actual amount of the changes.

**SPOTS IN PELARGONIUM LEAVES** (*A. R. C. D.*).—The preventives of this complaint is to be as follows: 1. To dig it away as the opposite treatment will be sure to bring it on. 2. Keeping the soil dryish instead of moist in winter and spring, and, if possible, choosing a bright sunny day to give what little water may be necessary, and spilling as little as possible. 3. Setting the plants on their side, say twice, to be in a slate, or stone, with air beneath as well as above the shelves, platform, &c., instead of standing the plants on beds of earth, ashes, &c. For extra fine plants it is a good plan to set the pot on the bottom of another pot reduced. 4. Keeping the atmosphere dry, airy, and free from insects, and to close, and to prevent. 5. Giving the plants early that all the foliage should be dry before the sun shines much upon it.

**ROSES** (S. Edmunds).—We should recommend the following in addition to what you have, though we should have been able to have given you a better answer if you had told us how many more you had given. *Madame de Malmaison*. *Scilla Pink*.—Baroness de Rothschild and Aetel Grand. *Lilac Pink*.—Marguerite du St. Amant. *Pink*.—Princess Mary of Cambridge and M. Noman. *Cerise*.—James Margotin, John Hopper, and Madame Charles de La Roche. *Red*.—S. Edmunds, and *Madame de Malmaison*. *Victor Verdier*. *Pierre Notting*, Duke of Edinburgh, and Xavier Ollo. *Yellow*.—Marchal Niel and Cuisse Forestier. In a good mixed garden soil they will do best on Manetti as dwarfs, care being taken to plant the collar of the roses at least 3 inches under ground.

**UTENSILS, CHAMBER STOVES** (H. F. B.).—It is not safe to use them instead of flowering plants, but they may advantageously be poured between the rows of Canillowers and other kitchen-garden crops in summer. The strength of this form of liquid manure varies so considerably, sometimes the slops being little beyond urine and soapy solutions, and at other times of a more solid nature, that it is well to have a scale, or tins how to use them. If like the former, the slops should be diluted with six times their bulk of water; if like the latter, they will not require dilution. Careful investigation and judgment must be exercised.

**SPENT ROSES FOR MORGAN'S SCRAVENGERS** (T. J. M.).—You may use them as you propose as manure, or you may use them for anything like forcing, manuring them by your other description of decaying or decayed vegetable matter, as leaves, grass, &c.; but by preventing evaporation they keep the soil moister than it would otherwise be. They make when a foot to 18 inches thick an excellent fermenting material for hot-beds.

**TACOSTIA VAN-VOLENT AND PRIMEAEO** (H. F. B.).—Both will succeed in glass cases not covered with draughts, and at about account kept too low in temperature, and the evaporation rapid or the atmosphere too dry. All they require is sufficient heat to be exsiccated frost.

**MANAGEMENT OF VINES** (T. S. D.).—We have a dim recollection of your case. We do not consider that two 3-inch pipes on each side of a span-roofed vinery 15 feet wide, and 12 feet high, is anything like forcing, but still that piping at the sides and one end ought to keep out more than 5 ft of frost—that is, when the thermometer is at 27°. We think it ought to keep out frost when the outside temperature is down to 19 or 12°, or even lower, in a quiet night. As the thermometer is very likely to rise, as you say, the pipes have sunk magnificently, and they would greatly improve the circulation. The large stones on which the pipes rest would have prevented that, except for the moving-about of the ground; but with the help of a small level it is easy to make such smaller pipes level by means of the stones, and the stones may be placed at the bottom of the 2 ft at the farther end they will do on the level, but better still if the 2 ft in length in the house they sink gradually, say 3 or 4 inches to the extreme end; and, if there is no cistern, have an open air pipe there, say 3-inch pipe, and passing it through the roof, and the water, and the other end going out of the house 2 or 3 feet higher, and the end bent down. This slight rise is more necessary, as the boiler, a small one, is 22 feet from the vinery. You do not say how it is used, but if not used

at all the pipes should be placed packed in nonconducting materials; or, if in an open chamber, the chamber should open into the factory, so that the heat given off there should go into the vinery. A small opening near the boiler would thus secure fresh heated air to the vinery. These matters attended to, we have no doubt you will obtain more heat from your pipes. For great works in houses it is important, here, first to divide the joints of the pipes, to prevent them moving. For want of them we are frequently obliged to fresh level some of ours. As far as we can judge, your treatment of the vinery since you have had charge of it has been quite correct; still, with the boiler and pipes placed near to the side of the house, it is not so good, because if we wish the Grapes to hang long we can scarcely have the soil on the surface too dry; and, just as in your case, when the house is to be filled with bedding plants, &c., in winter, it is quite as well not to have the boiler and pipes so near, as it renders them so much more powerful. Here, if the Grapes in such a house were out, say, in October, it would be good policy to clean the house, give a moderate watering so as to reach the roots, and either have the surface rather dry or a little dry surfacing added before the bulk of the plants were introduced. Let us never be content with thinking of one thing alone. Hence in such a house as yours, that has to suit various purposes, the diving as much water and top-dressing in the autumn as possible to prevent the roots sinking from dryness, and another watering in summer, water fortnightly or so before you increased the temperature of the house to break the Vines, and that water tepid, would, so far as autumn and spring were concerned, have plants injured, but the sun would be so powerful, and more air could be given. Lastly, there are many modes for arriving at one definite result, but then it is often requisite to adhere to one mode, and not to mix several. Of the correctness of the advice given by your employer we need never say, but that the man who has the most success in his work, and the most extended practical observation and experience is ever the most diffident of himself and the most charitable towards others. You are placed in one of those circumstances which many a young, intelligent man finds very trying, and in which he cannot but be disappointed. You should not have carried out in its entirety the advice given. In that respect you should have let it be clearly understood that you would have no responsibility for the result, that you would faithfully work according to the advice given, but that the credit of success and failure would be given to the adviser. With Vines so weak, we should not have objected to dressing the surface with pure cow dung, though we might have demurred to giving so much as three cart-loads, or twenty large barrow-loads of such stuff as you proposed, or at least would have preferred pushing the water out of it into the soil by degrees, instead of drenching it at once with two thousand gallons of cold water, as soon as the Vines were pruned, and when the roots were comparatively inactive. We think that as a garden or house that requires such a quantity of water, as you credit six hundred cart-loads of water instead of the two thousand, for which that quantity is more than we should have thought of giving at one time under the circumstances. But, then, from this exercise of prudence you take the most of the responsibility, and it is not to be desired, the adviser has the power to say, "It could not be otherwise, as you did not carry out my specific directions." Our general advice in all such cases is, take no responsibility when you merely carry out the plan of another; but if you are asked to do so, let it be clearly understood that you will faithfully and conscientiously. Every experienced reader can judge of your case. The floor of the span-roofed house will be 21 feet by 19 feet, and we presume all that is required for the Vines, the roots being all inside. We will suppose that the three loads of pure cow dung, which you have given, will be nine quarts of water to the square foot. With roots comparatively inert, we can see little benefit in so much watering, and the more manure the more the soil will be very well drained, such an abundance of liquid might pass away without doing much injury; but if not well drained we can imagine such a lot of rank, rich water turning the border into little better than a morass, and causing disease and decay in the best of the young Vines. I wonder that, when in the late frosty weather you could give but little air, your Vinery had an awful smell, and that it was bad for your many plants. It would be a good plan to keep an open trench to exclude tree roots from your ground. Raspberries grown and trained in lines, may be planted in the open air.

**DRY ROT IN TREES** (H. F. B.).—From your description we should say your timber was affected with the dry rot, a result of depriving it of a free circulation of air. You must first remove the cause—damp and deprivation of fresh air. Secure a thorough current by ventilation from opposite points, and cut off damp by raising the timber on dwarf pillars, and so forth. It is not so much the damp in the wood, but once it is given every tainted portion must be removed. Steep or wash the wood with 5 lbs. of chloride of zinc to twenty-five gallons of water. It is the best preventive of dry rot.

**PIPPING TO HEAT A LEAN-TO VINERY** (T. H. D.).—For such a house, 12 feet by 11, by 10 feet high, to be kept at 60° during, require about 50 feet of 3-inch pipe. Less than that would do if you commenced forcing four or six weeks later. We presume you have settled how and where the pipes are to be placed. The boiler alluded to will answer very well, as you can easily change the combustible the chimney is not so good, however, would suit your purpose. It will always be an advantage to have pipes on the same level, instead of one above each other. Thus, suppose that you had all the pipes in the front of the house, and the other in the back, you could have two or three down and one return.

**SOILS** (W. T. G.).—No. 1 would do for potting-off bedding plants in spring if mixed with one-third sharp sand. No. 2 is a poor loam, but would do for potting purposes if mixed with one-third leaf mould. No. 3 is a peat only fit for fuel.

**TANKS, &c.** (R. J.).—Beware in mind that except for giving an additional amount of heat, and for securing hot water for forcing, that you may choose to place in your vinery, you pit, there is no necessity for a tank at all in your pit in the vinery. It matters but little of what a tank is made—iron, brick and cement, or even wood, further than as regards heating. With water in your tank, and a perforated covering, you will always be sure



**Poultry Show.** I certainly think the mildest form of punishment that could be adopted would be to debar him from exhibiting in his own name at any future show for at least twelve months. I hold that such a practice savours very strongly of obtaining money under false pretences—certainly morally, if not legally.—OBSERVER.

## LONDON POULTRY SHOW.

JANUARY 15TH-18TH.

No metropolitan poultry show—no previous Crystal Palace Poultry Show—equalled that just concluded. There were 1377 pens, and we never remember to have seen anywhere such a small per-centage of indifferent birds; and in almost every class the competition was so close—the merits of many pens so nearly balanced—that the Judges had much difficulty in concluding their decisions in time. This occasioned a most vexatious delay in the completion of the prize list, and as this is printed in a column by the side of each page of the catalogue, no catalogue could be had until late in the day of Saturday. This caused great inconvenience, and we recommend in future, for a good future in prospect—that the prize list be printed on a separate sheet. Very few pens were antagonized, and among the absentees were the Light Brahma Poultry of Mr. Pares, an absence to be the more regretted because caused by a domestic affliction.

It is with great pleasure that at last we have to congratulate the Committee on the success which has attended their spirited attempt to establish a poultry show in London, especially as we were the first to open our columns, so that the subject might be thoroughly brought before those who felt an interest in poultry shows. The liberal prize list, as we expected, brought together a large collection of birds, not the largest in numbers, we believe in quality they have never been surpassed. The general arrangements were tolerably good; but we would suggest to the Committee that it would be advantageous for us the members at the end of each class should be continuous, for we experienced great difficulty in finding some of the classes; and, again, that the Pigeon numbers should run in a continual line instead of up and down, which must have been exceedingly troublesome to the Judges. Mr. Billett's well-known pens were hired for the occasion, and suited well with the light structure of the room in which the Show was held; but we thought the pens should have had some calico at the back, so as to prevent the birds seeing and fighting with each other. We noticed several birds very much disfigured through being too close to one another.

The *Dorkings*, *Cochins*, *Gans*, and *Brahmas* were very numerous, and included some excellent specimens. The first prize for Buff Cochins went to two splendid hens, but on Saturday one of them had an apoplectic fit and died in a few seconds. Mr. S. Matthews took the cup for Gans cocks with an excellent model of a Game bird; Miss Entwistle the cup for *Gans Bantams* with a bird which if a little shorter on the leg would have been perfect. Mr. Lane distanced all in the *Spanish* class for cocks, although there was a close competition for the second and third prizes. We were glad to see that many of the birds had smooth faces and the long job, which certainly looks far handsomer than the cauliflower face which we have seen lately. The hens showed to great advantage, but we hardly liked the birds which stood first so well as others in the class.

We were sorry to see so poor an entry for *Hamburgs*. We always admire this variety with their rose comb, white earlobe, handsome plumage, and neat shape, and are puzzled to know the reason why it has not become a more popular bird; but now the sickle feathers have been discovered, which no doubt have answered for many cocks; there is a better chance for winning a prize for exhibitors generally.

In the "Any variety" class there were some excellent and very curious birds; amongst others there was a pair of Bantams which were entirely without tails; there was also an excellent pair of Black Cochins. The Selling class was a show in itself, consisting of all varieties, and some of the birds would certainly have won had they been entered in their own classes. The Committee must have made a good profit by this class, as a large number of birds changed hands. We learned that during the first two days the amount taken in sales was upwards of £300. The birds appeared to be well fed and supplied with a plentiful supply of clean water.

On the French varieties we are promised a separate criticism.

HISTORY is said to repeat itself. It may do so, or it may not; but there is a sign of repetition at Sydenham of the poultry gatherings that were great favourites in years gone by. This week has seen a collection of good poultry brought into competition in the Glass House, and as the attempt of a hitherto-untried Committee it may safely be pronounced successful. One thing is certain, that the fancy for poultry and Pigeons in and around the metropolis flourishes to an extent not exceeded in any part of the kingdom. The show-case for the prizes (extra) in silver plate offered in addition to and independent of the prize sheet, was a sight in itself.

The *Dorkings* headed the list, the classes being for "Cock of any age," "Two hens of any age." For the best cock bird, Mr. J. Martin took the first prize; Mr. Bearpark second; Mr. Parlett third. High commendations and commendations were scattered broadcast all through the Show. The hens and pullets in Class 2 had many ad-

mirers, especially the third-prize pullets belonging to Mr. Lingwood. In Silver-Grey Dorkings the competition was small, and in Whites it was smaller. The quality of the Buff *Cochins* exhibited was very good. The hens and pullets were grand, the second-prize and highly-commended birds of Mr. Marplebeck especially. The classes for Brown and Partridge and for White Cochins were small, but the birds fully of average quality, especially the Whites of Mrs. Williamson and Mr. Zurhorst. Dark *Brahmas* were a strong class, stronger in numbers than in quality. The first prize in the class for cocks was taken by Mr. James. Light *Brahmas* for some special reason had three classes instead of two. In the class for cocks of 1863, Mr. Maynard took first, Mrs. Williamson second, and Mr. Crook third. This latter gentleman took first and cop for hens, as well as a second prize and highly commended.

In and around London we always get good *Spanish* classes, and the present formed no exception. The *Houdans* were not as good an average as we should have expected, nor were the other French breeds well represented, except by the birds of one or two exhibitors. The *Hamburgs* classes were very small.

The *Gans* fowls came to the scratch in fine condition. The first-prize Black Red cock, belonging to Mr. Matthews, was a very handsome bird. The hens were but few in number. The competition in Brown Reds was close, reversing the Birmingham winners. Duckwing cocks were good in numbers and quality. The *Black* was as Polish always are; the same exhibitors presented the same motley appearance to which we are accustomed at shows, and in the catalogue the names of the breeds were more than usually bizarre. The *Bantams* are always objects of great interest to general visitors, and those at the Crystal Palace formed no exception to the rule. It seems a pity to divide the pens of these little birds. The selling class was both popular and strong; the sales were brisk and frequent. In *Aylesbury Ducks* the quality was good, number small. *Rouens* were more numerous. *Turkeys* and *Gans* mustered poorly, and the classes for dead poultry were failures.

The arrangements seem to have been good, and lead to the hope that the Show will become a standing dish of the Sydenham bill of fare.

**PIGEONS.**—Our metropolitan Pigeon fanciers who so largely support provincial shows, have at length awakened to the fact that they owed their country friends an invitation. Hence, the "Great London Exhibition," which opened on Saturday at the Crystal Palace—a credit to all concerned; to the original projectors, to the Palace Company, to the exhibitors, and pre-eminently to the executive whose arduous labours, in spite of numberless difficulties, were crowned with a highly-deserved success. To the Pigeon representatives the scepticism of were unusually severe, not the least of them being the obstacles of their poultry coadjutors as to the actual strength of the Pigeon departments, and their ability to supply entries sufficiently numerous to redeem the prize money. The result, however, removes all such doubts for the future, and, as an annual Show, may be fairly anticipated from a beginning so enthusiastically supported, a liberal policy will always be justified.

It would be hypocritical to record shortcomings—if any, they were those and those only necessarily incident to a first effort of such proportions.

Of the Show itself, we do not hesitate to say that it has proved the choicest and most representative Exhibition ever brought together, and putting aside the Glasgow thirty-guinea challenge cup, which was only earnestly competed for by two exhibitors, we believe that even numerically this Show has no rival.

Taking the three leading varieties we find seventy-two Pouters, one hundred and eleven Carriers, and fifty-three pairs of Short-faced Tumblers doing the honours of their respective classes, and for the most part grandly displaying the present standard of excellence, and the naturalistic skill of their owners; while Barbs, Jacobins, Fantails, Nons, Trumpeters, Owls, Turbits, Magpies, Dragons, Antwerps, and unclassified Toys appeared in a profusion and excellence that must at once have delighted and surprised their numerous patrons.

If the Pouters fell somewhat short of a Scotch standard, many excellent birds were nevertheless present; enough, indeed, to show that our English fanciers are taking up this princely variety with great spirit, and may yet run their northern friends a close race.

The extraordinary strength put forth in Carriers and Short-faced Tumblers would more than have compensated the greatest deficiencies. Of the former variety it is impossible to speak with too much admiration, for never before was a class so perfectly represented, and never has excellence so distinguished been found in a like number of specimens. Fanciers alike of head properties, of style, or better still of both combined, must have found a well-nigh inexhaustible store of gratification, and could the prizes have been awarded five times over many a meritorious bird must yet have been left unworried.

Praising the general accuracy of the awards, which could scarcely have been entrusted to better Judges than Messrs. Corker and Percival, we must refer our readers to the prize schedule, glittering with silver cups and pieces of plate, rather than attempt any detailed analysis of the competition.

For the champion cups, however, there was a very keen contest. Mr. Wiltshire being so fortunate as to carry off three for Carriers, old and young; and the one for Almond Tumblers; while of the other cup-







**Doves.**—W. R. & H. O. Blenkinsop. *English*.—1, J. J. Wilson, Darlington. 2, R. K. H. O. Blenkinsop.  
**TOMBLEYS** (Common).—W. Harvey. 2, H. Morrow (Balda). *hc*, W. Petrie (Yellow).—E. Homer. *hc*, H. Yardley.  
**DRACONS**.—F. G. Graham. 2, S. N. Challoner, Newcastle. *hc*, W. Harvey; J. Percival, Peckham; M. McGuire, West Sheburn.  
**ANY OTHER VARIETY**.—1, W. Harvey. 2, T. W. Kilburn (Swiss). *hc*, J. Fielding, Ipswich; W. R. Van Haanbroek (Black Vane); H. Yardley; J. Canale; J. W. W. (Maine and Swallows); W. R. & H. O. Blenkinsop (Magpies); E. Homer.  
**ANY OTHER CLASS**.—1, W. H. C. Oates (White Transparence). 2 and 3, R. Whitaker, Delph Hill, Bolton (Red Turbans and Owls). *hc*, A. Wright (Fouters). *c*, J. Percival (Beards); W. R. & H. O. Blenkinsop (Owls).

#### CAGE BIRDS.

**BELGIAN**.—*Clear Yellow*.—1, R. Forsyth, Edinburgh. 2, J. Baxter, Newcastle. *Clear Bug*.—1, J. N. Harrison. 2, P. Bennett. *Variegated or Marked*.—1, J. Baxter, Seaton Burn, Belper.  
**GLASGOW DOGS**.—*Clear Yellow*.—1, J. Stewart, Newcastle. 2, W. Clark, Newcastle. *Clear Bug*.—1, W. Clark. 2, S. Soudby, Newcastle.  
**GOULDEN MOLES**.—*Yellow*.—1 and 2, J. Baxter. *Bug*.—1 and 2, J. Baxter. *LINNETS*.—*Janet*.—1, Baxter.  
**NOVA**.—*Clear Yellow*.—1, Moore & Wynne, Northampton. 2, Irons and Gayton, Northampton. *Clear Bug*.—1, Irons & Gayton. 2, Moore & Wynne. *Variegated or Marked*.—1, Moore & Wynne. 2, J. Besson, Derby.  
**CANARIES**.—*Janet*.—1, J. Besson. 2, J. Smart, Newcastle. *Bug*.—1, J. Besson. 2, Moore & Wynne.  
**CANARY** (Green).—1, J. Guthrie. 2, L. Billcliffe, Newcastle.  
**ANY OTHER VARIETY OF CAGE BIRD** NOT MENTIONED.—1, Moore & Wynne. 2, J. Baxter (Crested).  
**EXTRA PRIZE FOR FOREIGN BIRDS**.—1, Capt. J. Dodds, Newcastle (Mocking Bird of India). 2, J. Healey, Jarrow (King Parrots).

**JUDGES**.—*Pigeons*: Mr. T. J. Charlton, Bradford; and Mr. G. Fletcher, York. *Canaries*: Mr. T. Lowrey, Gateshead Low Fell.

## THE GLASGOW PIGEON SHOW (NORTH BRITISH COLUMBIAN SOCIETY'S).

(Continued from page 36.)

### THE Pouter CLASSES.—Continued.

In our resumed report of last week (interrupted by the heavy demands on our columns) we reminded our readers that the Yellow Pied strain from an inferior condition had rapidly risen to an equality with the other standard classes. No department, indeed, illustrates more emphatically the resources, perseverance, and skill of the modern Pouter-fancier; and if in some degree it shares the common failing in regard to plumage, it is for the most part a defect accidentally derived, rather than a purposeful infringement of sound principles of breeding. Solidity of colour has ever been sought, and most properly, through the Red strains, on the purity of which very much depends. Valuable, however, as this cross is to the Yellows, and in its degree to the Reds also, it is especially liable to deterioration from its reactionary and diluting effect on the Red, unless due precautions be taken to support the Red blood in fulness and richness. In the haste to obtain Yellow in quantity rather than quality, such precautions have sometimes been neglected; hence colour has not always kept pace with other notable improvements. The result is not so determined in tone as it might have been had our friends contented themselves with fewer but more trenchant matches. While recording with congratulations the advanced position of the Yellow class, we may, speaking generally, ascribe the occasional weakness of tint and frequent ashenness of feather to the neglect of Red blood, or its use in an impoverished or a polluted state. By a natural transition this brings us to the allied strains, and to the consideration of that pollution which, accidentally to the Yellow Pied fancier, and beyond his responsibility, has marred his labours, and to this section of our report we invite serious attention.

The weak point of the Show was decidedly the *Red Pies*. Presenting little that was exceptional on the score of the structural properties, as compared with the other classes, our remarks may be addressed with the more purpose to the one distinctive feature—colour. In this particular Mr. Montgomery's birds—heretofore so great, and although still above the general average of excellence—were equalled if not surpassed by a single specimen (No. 193), exhibited by Mr. D. Stewart. Notwithstanding the unusual depth and richness of its hue, this bird was probably overlooked by the majority of visitors, it being much out of condition. Ranking next, but of only comparative merit, may be placed the first size hen of Mr. Volkman. Viewed, however, as a whole, the Red classes were almost a burlesque in the department in question, every possible imperfection tainting the feather. Even in the best a whitish grizzled effect too often asserted itself, whilst the inferior specimens donated costs so questionable that only the largest-hearted courtesy would dare to pronounce them Reds. Instead of a solid unmingled colour, a weak composite effect prevailed, and sound red gave place to a pale, washed-out, spurious ground tint, dappled, chequered, and shaded by every possible degree of ashen-laden dullness.

The deterioration is much to be regretted, for in Reds, perhaps, more than in any class there is a scope, we think, for much variety of taste and gradation of tint. Providing in each case a simple, and not an amalgam is produced, such gradations might include many shades pure in effect, from a soft, rich, downy colour to a deep lustrous red, brightened throughout the feather, and especially in the hackle, by glancing tints of green, purple, and gold. Such a gamut of colours is occasionally observable in the best Jacobins, but only at rare intervals in the Pouter classes.

The present decrease of colour is not altogether a blameable

matter, for the necessity of breeding Yellows over to Reds has occasioned a dilution of the red blood, which careful matching may rectify. Yellows, however, may safely be allowed for a season or two to take their chance unaided, in order that by mating the best Reds together the red colour may be renovated and intensified. Yellows, indeed, will be the gainers by this policy, for when again crossed over to such improved red their own coats will be the brighter and richer. As in the Blacks, so in the Reds, much mischief may be traced to the Blue cross; not that the Red Pied fancier of to-day is ever guilty of a proceeding so monstrous. So extremely dominant, however, is the Blue or Blue Mealy blood when once infused into a strain, that for generations after its use, or rather misuse, it will continue to assert itself, and in the case under review the evidences of mistakes, probably dating from many years, are almost as apparent now as if the mischief had only been perpetrated yesterday. Such a cross could only have been designed for the purpose of strengthening the Red strains on the side of the structural properties—size, shape, &c.; but it is worthy of especial note that any gain in this direction is probably more than counterbalanced by the injury occasioned to another cross in every respect more legitimate, and good alike for structure and plumage—viz., the cross of Red to Black. The true effect of this cross in Pouters is so impaired that it cannot just now be fully realised. Instead of being a cross from pure red to pure black, it is too frequently only a cross from disguised blue to disguised black (or including blue to take the other view), with results fully maintainable, that the ashen dull effect peculiar to the Blue or Blue-Mealy admixture. Disappointment should therefore take into account the extreme tendency of Blue blood to reappear by reversion, notwithstanding its dilution through many generations. There can be but little doubt that the cross of really pure red and black would be inestimable in the department of structure, while in plumage it would help in time to relieve the Black Pies from foul thigh feathers, and would possibly be a means of establishing brilliant and highly varnished colours. Of what advantage, may we inquire, is "one-sided breeding," or the culture of one set of properties at the expense of another? Fanciers if of this type may at least learn that the "more-haste" is but a "worse-speed" method after all, imposing on the artistic breeder an amount of undoing labour which might be spared him, and which would be the better devoted to the attainment of higher standards, and the development, by legitimate means, of pure unsullied pedigrees.

The conservative policy we indicated as so necessary for the Black Pies is even more imperative in the case of the Red strains. It will be the careful selection of the very few for a high standard that will renovate this department, rather than the mating of the many inferior specimens with which our roofs are overcrowded. Purity, always purity, must be the watchword, and Blue blood must be rejected with the utmost inflexibility, no matter in what form it present itself, or how ever diluted, for it stays not with the Red strains, but through them imports its pollution into the Yellow, to the great disadvantage of that delicate but advancing colour.

The White classes brought out some very handsome birds, and, alas! some very dirty ones also. Now, while we can thoroughly sympathise with fanciers in smoke-polluted towns in their very natural craving for the clean, the chaste, and the innocent—so fitly emblematised by "spotless white"—yet we submit that the selection of white varieties rather aggravates than ameliorates the disadvantages under which they strive. And although this craving may be soothed by the insertion of sweet suggestive names in the Society's catalogue—"Snow-drop," "Snowflake," and the like—we further suggest that "Chimney Sweep" or "Scavenger," in many cases, would have been more applicable. The successful exhibitors taking first prizes were Messrs. D. Stewart, Ure, and Sanderson; and taking inferior awards, Messrs. Sanderson, Montgomery, Ure, Rathvun, M. Stuart, Volkman, Wallace, Haie, Bruce, and Rose.

In the absence of plumage points the attention of the breeder is confined exclusively to the structural properties; but notwithstanding this concentration of aim, we do not as yet find the Whites as a class exhibiting any superiority of size or structure over the Pied departments—a fact the more remarkable since strength may legitimately be derived from every quarter by the judicious cross to colour. Colour, however, has lost too often used as a mere economising of the paint, regardless of the principle that a very clear gain on the side of strength, size, or symmetry alone justifies the expedient in question, and that unless the selection for these cardinal ends is most choice and severe, the class will not only remain unprogressive, but will become hampered by numberless grizzles and splashes. The standard, in short, is purely structural; all the possibilities of the true Pouter lines and carriage should therefore be found to perfection in the White variety—the small neck-looking head, gently cushioned on a boldly defined and globular crop; the head, body, compact shoulder, grooving back, and slender thigh; the long and delicate digits just meeting over a well-formed and lengthy tail; and, greatest point of all, the tail, closely set, proportioned limbs, gracefully elevating and poising the symmetrical body-structure. That such beauty of form should have enticed so many fanciers to the Pouter classes cannot be surprising, enhanced as it is, by a familiar and playful carriage, erect yet pliant, and abounding in the utmost variety of elegant gesture.

With this feeble *résumé* of cardinal properties (common to all the Pouter varieties, and well represented at the Glasgow Show), we prefer:

to conclude our present article, lost our Pouter friends may imagine we are only fanciers of colour and markings; leaving the irregular classes for later discussion under the head of "Pouter Classification," on which we shall in our next offer a few observations. Meantime, it will only be just to record that in addition to the gentlemen already named by us, Messrs. Grant, A. Frame, Arbuckle, Meff, and Waddell, appeared as prizetakers.

(To be continued.)

### SKY TUMBLERS.

PERMIT me to say a few words in answer to some remarks respecting my having the old original Sky Tumbler. What is stated by "EYE WITNESS," whoever he may be, is quite true. I have been a fancier of these Pigeons ever since my childhood, and have kept them for upwards of twenty years, and I have sent young ones to all parts of the world. Our exhibitors appear to have lost sight of this breed. There are all colours, feather-legged and clear, and they are a very peculiarly-built bird, resembling the Swallow very much—short-faced, broad-chested, small and compact little creatures, with very strong thighs, shooting back when drawn out as in the spring. They ought to be fed upon nothing but small Indian corn, and occasionally a little hemp-seed, a piece of rock salt always kept for them to peck at, and small gravel mixed with a little old lime. I am willing at any time to give information respecting how to breed them, and how they ought to be trained for flying. Do not buy a bird from anyone unless you see it fly, and then judge for yourself.

I only hope to see more fanciers of this variety than there have been of late years. The breed is scarce, having fallen into neglect for the short-faced, short birds, almost exclusively.

I have frequently let my birds fly for time—say not under five hours, to alight upon any place, and very nearly always in sight, excepting when dark clouds pass, as these birds fly beyond them, and are lost for a few minutes. I am open to let fly "OLD DON RUDLEY'S" Pigeons merely for pleasure. I shall only fly thirteen young ones, twelve weeks old, and if they do not "beat his hollow" I will forfeit them. I am willing to let any gentleman see them do their work, but only for pleasure, and will fly my flock against any flock, providing they have not been bred from mine.

These birds ought never be allowed to go to nest from the 30th of September till the 20th of February, as the breed will become quite weak in consequence of over-breeding. Many years ago, when first commencing with these birds, I was often taken in, and never could get the proper breed. My present breed was brought from America by myself, and they were taken over there by one of the oldest Pigeon-fanciers who belonged to Liverpool.—W. Crook, *Seascale, S. Wales.*

### PRIZE CUPS FOR CANARIES.

ALLOW me to inform intending subscribers to the cup fund at the Crystal Palace Bird Show, that I have received sufficient for a cup for London fanciers, thanks to the manner in which the breeders of that variety have subscribed; but Norwich, Lizard, and Cinnamon classes are still not half filled. I would urge the admirers of these classes most strongly not to hesitate, but to come forward like men, and not let it be said that a few gentlemen, like the exhibitors of London fancies, can subscribe sufficient for a cup, when the exhibitors of Norwich birds, whose names are legion, stand aloof.—HOWARTH ASHTON, *Polefield Hall, Prestwick.*

### HALF-BRED ITALIAN VERSUS NATIVE BEES.

THE question, whether half-bred Italian bees are preferable to our native bees, is often asked me. My answer is, Yes, I consider them even better than the pure Italians. Every bee-keeper will find it to his advantage to purchase a stock of pure Italians, or introduce into his colony an Italian queen or two. It is not to be expected that every bee-keeper will take interest enough in bee-keeping to Italianize all his stocks, and keep only pure Italians. Neither is it necessary that he should do so. The object of introducing Italian bees is to improve the stock, and as hybrids are really more profitable than pure bees, it is only necessary to introduce Italians until the stock is thoroughly hybridised throughout the country. It may appear strange, after all that has been said in favor of pure Italians, to say that hybrids are really more profitable, yet such is my opinion. Not that Italians are not deserving of all

the superiority that is claimed for them over the native bees, but my experience has been that when compared with the hybrids as honey-gatherers they are hardly equal. I find my hybrid colonies are generally better supplied with winter stores than either the Italian or black bees, while they give me more surplus honey.—J. H. THOMAS (in *Toronto Globe*.)

### OUR LETTER BOX.

\*+ Many answers, reports, &c., are unavoidably postponed until next week.

BOOKS (*S. Bateworth*).—No such books as you mention exist. The names on the title refer to the departments of our Journal.

DROPPY IN PHEAS (*H. B.*).—There is something wrong in your feeding. Droopy in fowls is the result of oblige, or of forced laying caused by stimulating food, or of disease of the laying organs. There can be no natural cause for the prevalence of droopy in a yard. Confine your food to barley and barley meal.

HOUAN PULLETS LAYING INTERMITTINGLY (*Black Bantam*).—Your case is not a common one; either the fowls lay and you do not find the eggs, or you do find it is not good enough. Experience in the morning and whole corn in the evening is not good enough to keep fowls in laying condition in such weather as we have had lately. They must have three meals every day, and if you want regular laying an occasional "bonne bouche" will be useful.

MATING GOLDSPECKED HAMBOURGERS (*J. Sabersher, H. S.*).—You must breed according to your requirements. If deficient in markings choose dark birds; if overdone and mossy, choose light ones. In either and every case you must so form the new alliance as to introduce the quality in which the produce of the old are deficient. Put the light cocks to dark pullets, and vice versa.

HATCHING SPANISH HENS (*E. G. M.*).—We do not set our own Spanish eggs as early as this, but we see no objection to it. Our difficulty at this time is to get sitting hens. It has always been a tradition that Spanish should be hatched in April or May; but if it suited our purpose we should have no misgivings to set them now. Our notion of warmth is that it should be supplied by foot; the colder the weather the better the food, and the more frequent the feeding.

TAIL OF SILVER-SPANGLED HAMBOURG COCK (*W. M. E.*).—The tail—that is, all the sickle and principal feathers of a Silver-spangled Hamburg cock's tail, should be white with a black spot at the end of each.

FEATHER SPRINGING AND DYING (*Chidhopper*).—A sparrow killed them, caused by their being overfed. Give ground oats or barley meal at their evening food, and whole barley in the morning. Feed only twice daily, and give them no Indian corn.

SKY TUMBLERS (*S. Edmunds*).—See what Mr. Crook says in our Journal to-day.

ROCK DOVES.—"Eingoff" wishes to be informed where he can obtain these.

NETT'S HIVE (*Amateur*).—Write to Messrs. Neighbour or Mr. Pettit, who advertise in our Journal. They will send you lists of prices. The Almanac will not be republished.

PANCAKE HIVE (*H. B.*).—No actual injury will ensue to the bees from painting the hive whilst it is inhabited, although the advisability of doing it at all may, perhaps, be questioned. Double sides to a hive are doubtless advantageous; but would not the same end be more conveniently attained by the adoption of a separate outer covering either of wood or straw?

### COVENT GARDEN MARKET.—JANUARY 19.

BUSINESS was rather improved, and a more steady character is imparted to the transactions with the provincial markets. Prices, however, have but slightly advanced, there being large stocks in hand, and importations are heavy. Potato trade dull, great complaint of blight in some parts.

#### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	doz.	0	0	0	Blackberries.....	quart	0	10	0
Apricots.....	doz.	0	0	0	Buckwheat.....	doz.	0	0	0
Cherries.....	doz.	0	0	0	Oranges.....	doz.	0	10	0
Chestnuts.....	bushel	8	0	14	Peaches.....	doz.	0	0	0
Corrants.....	doz.	0	0	0	Pears, kitchen.....	doz.	3	0	4
Black.....	doz.	0	0	0	Quinces.....	doz.	3	0	0
Figs.....	doz.	0	0	0	Raspberries.....	doz.	3	0	0
Filberts.....	lb.	0	0	0	Strawberries.....	doz.	10	0	0
Cobs.....	doz.	0	0	0	Walnuts.....	doz.	10	0	0
Gooseberries.....	quart	0	0	0	do.....	doz.	10	0	0
Grapes, Hothouse.....	lb.	4	0	10					
Lemons.....	doz.	0	10	0					
Meats.....	each	2	0	0					

#### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	doz.	3	0	0	Leeks.....	bunch	0	4	0
Asparagus.....	doz.	1	0	0	Lettuce.....	score	1	0	0
Beans, Kidney.....	doz.	3	0	0	Onions.....	pot	0	0	0
Broad.....	bushel	0	0	0	Potatoes.....	doz.	0	0	0
Red, Red.....	doz.	0	0	0	Mustard & Cress.....	doz.	0	0	0
Broccoli.....	bushel	1	0	0	Onions.....	doz.	0	0	0
Brussels Sprouts.....	doz.	3	0	0	Pickling.....	quart	0	4	0
Cabbage.....	doz.	1	0	0	Parsley.....	doz.	3	0	0
Cauliflower.....	doz.	3	0	0	Spinach.....	doz.	3	0	0
Fennel.....	doz.	1	0	0	Swedes.....	doz.	0	0	0
Carrots.....	bunch	0	0	0	Turnips.....	doz.	0	0	0
Cauliflower.....	doz.	3	0	0	Turnips.....	bunch	0	0	0
Fennel.....	doz.	1	0	0	Vegetable Marrows.....	doz.	0	0	0
Coleworts.....	doz.	2	0	0					
Cucumbers.....	each	0	0	0					
Endive.....	doz.	2	0	0					
Fennel.....	bunch	0	0	0					
Garlic.....	bunch	0	0	0					
Herbs.....	bunch	0	0	0					
Horseshoe.....	bunch	3	0	0					

## WEEKLY CALENDAR.

JAN. 27—FEB. 2, 1870.

Day of Month	Day of Week	JAN. 27—FEB. 2, 1870.	Average Temperature near London.			Rain in last 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. h.	
27	Th	Meeting of Royal and Zoological Societies, Length of night 15h. 5m. (8.30 P.M.)	44.6	31.2	37.9	20	49 17	53 4	3 4	54 0	2	25 13	2
28	F		45.8	30.8	38.3	21	48 7	40 4	13 5	36 1	26	13 13	28
29	S		45.6	31.5	38.5	18	46 7	42 4	13 6	29 2	27	13 24	29
30	Su	4 SUNDAY AFTER EPIPHANY.	44.7	32.2	38.6	23	45 7	41 4	4 5	34 3	28	13 34	30
31	M	Hilary Term ends.	44.3	30.9	37.9	20	43 7	46 4	6 7	36 4	29	13 45	31
1	Tu	Twilight ends 6.44 P.M.	44.4	32.0	38.3	14	41 7	48 4	20 8	43 5	1	13 52	32
2	W	Meeting of Society of Arts, 8 P.M.	44.6	31.5	38.0	21	40 7	49 4	46 8	50 6	2	13 59	33

From observations taken near London during the last forty-three years, the average day temperature of the week is 44.9; and its night temperature 31.4°. The greatest heat was 57°, on the 20th, 1863; and the lowest cold 8°, on the 30th, 1857. The greatest fall of rain was 0.70 inch.

## RIDGE-AND-TRENCH SYSTEM OF GROWING POTATOES.

NEVER like to own that I have been busy, for if so, what would the public care? But I must state the fact now, because it is the cause of my having kept "A SUBSCRIBER, BUT A NOVICE," so long waiting for an answer to his letter, in which he asks for a detail of my mode of cultivating the Potato.

The system of growing Potatoes which I have adopted and written about for seventeen years, with the latest improvements upon it, I will now state for the information of your correspondent, and, perhaps, of others. It is worthy of note, in the first place, that I have grown Potatoes on the same site for twenty-three years, but I never could succeed in growing a handsome sample or a fine-flavoured crop till I had felt my way into what I have always named the ridge-and-trench plan. It admirably adapted for rich heavy loams, clays, and wet soils. It would answer "A SUBSCRIBER'S" purpose exactly, and it does especially well with me on this rich garden loam, overshadowed with trees.

I never use fresh manure at the planting of Potatoes. To insure the economical working of the soil, I have adopted a sort of third course, two-thirds of the ground being bastard or half-trenched before the middle of March, by degrees as opportunities occur—namely, as the crops of the Cabbage tribe are cleared from the ground; and then, far preferably to dung, I use quicklime fresh from the kiln, at the rate of about fifteen bushels to the rood, placing it in half-bushel heaps equally over the soil in fine dry weather two or three days before I intend planting. Immediately after the heaps of lime are distributed, I pour about a half-gallon of water on each from the rose of a watering pot, and at once completely cover the lime with the surrounding soil: as it shakes and bursts in white powdery heads from the sides of the heaps, I shovel over them more soil till the bursting ceases, which will prevent the caustic properties of the lime being lost, and serve as a guide to inform us that the lumps are dissolved, and that the lime is ready to be evenly distributed over the surface of the ground. The soil should then be at once worked about 3 inches in depth with a scratch trident, or be pointed over with one of Parkes's steel forks to about the same depth, but not deeper, as lime is sure to fight its way downwards of its own accord, too quickly if anything. The same may be said of cinder ashes; but I am no friend to cinders, excepting on strong clay land, and even then for garden ground I take care to use only the finest siftings from them. Coarse cinders are cold hungry applications, and far better adapted for use in a well-drawing stove or furnace. Wood ashes are excellent given at the rate of about ten bushels to a rood—I am a regular customer to a neighbour who burns nothing else but wood—so are soot and salt at the rate of about ten bushels of soot and one hundredweight of salt to a quarter of an acre; likewise mortar rubbish in almost any quantity. These top-dressings are, of course, most

advantageously administered, when they can be procured, alternately.

The other third of the ground mentioned we shall suppose to be occupied early in autumn with the main crop of Potatoes; it should, as soon as they are taken up, be thoroughly trenched, if it has been half-trenched twice before—that is, merely had the shovellings cast on the top of the first spit of soil dug out, and the bottom, or subsoil, forked over, broken, and left there, the ground being thus, to a great extent, subjected to the ameliorating influences of the atmosphere. It is always best to avoid raising to the surface a full-spit-deep of subsoil which has not been disturbed for a generation, or probably never before: for then a poor crop, or scarcely any crop at all, must be expected for a year or two. Therefore, provided our third compartment has undergone the half-trenchings, thoroughly trench it whilst the sun is in full power as soon as possible after the ground is cleared of the Potatoes. It is of the first consequence to know that trenching, or, in fact, moving the soil in any way for cultural purposes, should preferably be done during dry hot weather, in order to secure the beneficial results to the soil which arise from the action of the atmosphere. Never on any consideration persuade yourself to carry out these operations, or to trundle manure over the land during a rainy time, or when the ground is wet, or to trench down lumps of soil when the ground is frozen.

Well, during the dry hot days of autumn, I manure my third portion after the following manner. We hear much about earth closets and house sewage now-a-days as being something new and difficult to deal with; but it is no new thing for me to say that one of our sewage tanks, and our earth closets here, have been in use for upwards of twenty years; and the first liquid-manure tank I caused to be made was formed thirty-six years ago. We have two sewage tanks here at present—I require another—the sediment from which is cleared out once a year, and mixed with road-scrappings, along with the contents of the earth-closet pits, in a large opening dug in a back yard for the purpose. To all this are added, as the process goes on, the contents of the mixen, an agglomeration consisting of the refuse from the garden, a decayed hotbed, chiefly of rotten leaves, and all the sweepings and refuse that are to be collected from a house and grounds in a country-town suburb, the goodness of which has been carefully preserved by constant siftings over with dry earth or fine cinder ashes during the collection of the mass. This mixture is wheeled on to the ground as the trenching proceeds, and no more of it at a time than can be worked into the soil during the next few hours; for this reason—this muck pie of mine, although not particularly offensive to the smell, is by no means inviting to the eye when lying in heaps about this garden, which is partly overlooked by the living-room windows. Besides, having been most anxious through many months to retain the ammonia in it, would it be consistent now to spread it over a large space of ground to allow the air to unlock the precious gases, when one knows how highly beneficial those gases are as soil-fertilisers, and that by quickly locking them up in the soil we

thereby save all the valuable properties of the manure? I say locking them up, which is bad logic, for in point of fact bury dung as deeply as you will the ammoniacal gases will sooner or later struggle upwards, and this very feature, one would think, ought to induce us to endeavour to hurry it into the ground as soon as possible, to prevent its loss of time. Without being analytical chemists, some notion of the loss may be gained by procuring pure smelling salt from the druggist, and causing them to evaporate on a plate placed before a bright fire. Something very much like this must soon take place when the sun pours down its heat on fresh stable or farmyard manure as a maximum, and dried fish manure as a minimum, when spread out for days upon the surface of the land—aye, even in winter, let alone violent storms of rain, which are apt on hard-beaten surfaces, where the ground lies inclined, to wash away to the nearest outlet much of the fertilising matters from the dung, and, alternating with sun and wind, leaving it at last with few other properties than those of very respectable old thatch.

We will now suppose our ground thoroughly trenched, with the manure well mixed throughout the whole body of the soil, and the bottom spit uppermost, to be acted on only the frosts of winter; then in due time this is the compartment on which I prefer to employ the quicklime to attack the stubborn, slow-decaying remnants of the refuse and the inorganic substances which, perhaps, have been lying buried and unproductive for ages. For all light sandy soils worked on the above principle I recommend the flat system, of planting Potatoes to be practised as early as possible—say in the beginning of February, using a dibble, and planting 7 inch deep, afterwards slightly scarifying the ground between the rows to keep down weeds and let in the air. Never mould up, and for store Potatoes, which should be of the sort which ripen early and keep late, allow 3 feet 6 inches between the rows in garden soil. Potatoes which produce gross foliage are also more suitable for light sandy soils than those with meagre tops, and a tiler that will turn deep eyes in a rich loam will appear shallow-eyed from a light land; so much so, sometimes, that the variety will be scarcely recognisably a judge at the show-table. Flavour, too, becomes strangely altered. I could grow the same variety in this garden partly on flat matted ground, and partly on the ridge-and-furrow system, which I am about to explain; those produced by the latter plan should gain me a first-class certificate when cooked, and those grown on the flat would be passed over as unworthy of being eaten, strong, and ill-flavoured, which I am sure at the chief point of "Scrumscriber's" inquiry. The first or second week in April is time enough for him to plant. I infer from his letter that our soils are much alike.

For first early Potatoes allow 26 inches between the rows, and for store sorts quite 42 inches, and do not be afraid of these distant s, provided, of course, that the ground has been trenched. Measure out the widths by stretching two garden lines where two rows of sets are to be, and then place the seed tubers upon the surface of the soil along the lines, at 1 foot set from set for the early kinds, and at least 15 inches apart for the late sorts. Then reach the lines between the two rows of sets at an inch or two wider than a Parthen's steel fork—never use a spade on good holding soil—so as to afford a guide in casting out the soil, which eventually will form a trench between two ridges. When the soil is of a very tenacious nature a spade may be used to make a cut rather slopingly inwards close to and inside the lines, to remove the soil from the shoulders of the trench, and make the appearance more even to the eye; but I scarcely ever adopt this practice, now, as I find the lines of the fork perform this as nearly equally efficiently as one proceeds, and in a far more time and tramping unnecessarily over the ground. Now force the fork about half the length of its tines into the soil, and cut the soil alternately right and left; not plough over the sets, so that would displace them, and possibly break off the young shoots with which they are already provided, as previously advised upon, but as far from them as the edges of the ridge will allow, so that the seed Potatoes will then appear as if lying in a hollow. The "crumbs," which are directly afterwards shovelled out, must be made gently to take a central position over the sets, and to cover them about 3 inches deep without injury to the young shoots; and in lieu of piling up the ridges at once to their proper height (as a superincumbent weight of earth, in consequence of the ground being recently trenched and loose, might cause, during the first wet weather, a troublesome displacement of the sides of the trenches), let them remain for another fortnight or so. After-

wards when they are more settled, or the young green tops of the sets are to be seen just peeping up, then is the time to cover another half-depth with the fork as before; but cover over the growing shoots about an inch or so at this operation, and shovel out the final "crumbs" at any other period quite over the growing foliage when a frost is likely to occur during the night, and so on, eventually forming the ridges with good 6-inch broad tops, when they may be considered in a fit state to be left to themselves. They may be so left, with the exception of pulling up a few weeds from them when necessary, until the Potatoes are ready to take up, though the mind of the worker must at once begin to think how the trenches may be occupied most profitably with the Calbage triole.

I plant Brussels Sprouts between the early Potatoes, and Broccoli for succession between the 42 inch ridges. The soil is well soaked occasionally, as soon as the Potatoes are lifted, with sewage from the tanks; and along the centres of the ridges, 3 feet apart, between the Brussels Sprouts, rows of Early Stone Turnips may be sown daily, as the early Potatoes are cleared off, with a fair chance of securing some nice sweet Turnips to be drawn when small, so as not to crowd their neighbours. The Broccoli may not appear so even or quite so "stocky" as when planted on a piece of ground especially prepared, but they soon become strong and improve in appearance when the Potatoes are gone. I have a fine piece at this moment, although many would scarcely believe I had secured a fine crop of tubers from between them during their infancy. I have also had a full supply of Brussels Sprouts for the last two months on the plan recommended.

I trust the above system may suit "Scrumscriber's" ideas, and assist him towards "nice Potatoes," and further, furnish his soil with every substance that will be required to produce them from generation to generation, without ransacking the world from "Indus to the Pole." If the question should be asked, How about the phosphates? I would point out to him a tal where every bone is collected after the cook's manipulations, and then to a hard flagstone and the back of a hatchet!

I will conclude with the names and descriptions of those varieties of Potatoes which I exhibited at South Kensington on the 21st of September, and which I consider fully up to the requirements of the present day.

*Tong's Early Goldstream*.—A good household or market variety, excelling for earliness in gaining firmness and flavour; suitable for frame work, for garden, or for field culture if the ground is good.

*Dickson's (Chester) Premier*.—Without doubt the greatest-yielding early Potato for market and general household consumption, and as an exhibition sort there is none to surpass it. This variety may be substituted for the market or the servants' hall by Myatt's Early Prolific; but the "caming Potato" to please them both, as well as Rivers' Royal Ashleaf *hors de combat*, is Vetch's Improved Ashleaf, excepting Dickson's Premier only as for the exhibition table.

*Rivers' Royal Ashleaf*.—The best of its class, to be easily and cheaply had at present, for early market and household use, coming in directly after Myatt's Prolific; of excellent flavour, though yellowish in flesh. Suitable for garden or field culture.

*Early Emperor, alias Emperor Napoleon*.—A good second early round red sort for the market or the household; of excellent flavour, though yellowish in its flesh. Suitable for garden or field cultivation; for the latter preferably, provided the soil of the garden is a rich loam, as in this case the sort is apt to throw gross haulms, and the Potatoes to become diseased.

*Dalmead's Seedling (Round)*.—This is an improved early Regent, and scarcely to be distinguished from the Dalmead, except by hoing, when Dalmead's sort will be found to be ready for the table some eight minutes sooner than the Dalmead. First-rate, both of them, for market, household, or the parlour table, and suitable for garden or field culture.

*Wheeler's Milky White*.—A good second early Potato, excellent for the parlour table on account of its good looks, and always appreciated by ladies, though I complain of it, and I have frequently heard it complained of by gentlemen, as lacking flavour. A good household variety, and suitable for garden cultivation.

*Taterson's Scotch Blue*.—A very prolific, and a good white-fleshed blue-skinned variety. A second early for market and household use; garden or field culture, more especially for the garden.

*Dran's Waterloo Kidney*.—A capital market, household, or parlour-table kind, suitable for either garden or field culture; a great yielder, and, I presume, a seedling from Wheeler's

Milky White, which it much resembles in its flesh. Mr. Daintree has a new seedling resembling it in every respect, excepting that this new variety—Daintree's Baker's Dozen—cracks its skin a little more during its progress towards maturity. I have written "Baker's Dozen," because, when Mr. Daintree, Fendrayton, near St. Ives, Hants, sent the sort for me to try, two years ago, he said "he had a great opinion of it," and requested me to give it a name. There were thirteen tubers in the package, so I have named his variety the Baker's Dozen.

**Harris's Imperial Kidney** (Cutbush & Son).—A capital prolific market or household Potato, and suitable for garden or field culture. It comes a little too pyriform in shape to please me, although the sample that Mr. Cutbush presented to me was a white blunt-nosed kidney of the handsomest type. There can be no mistake about its capability of producing a very heavy crop.

**Almond's Yorkshire Hero**.—A prolific and excellent late-keeping Potato, suitable for either garden or field culture, and at the top of the list for flavour, and as being suitable for market, household, or the parlour table; albeit a little too dry in its eating to please the extreme palates of a few. It is the best strain of the Lapstone Kidney family, and it is of the hybrid class raised by Mr. Thomas Almond, by the modern method of grafting the eye of one Potato in the tuber of another. If this variety cannot be obtained, substitute for it Haigh's original Cobbler's Lapstone, which, I doubt, will be found even more difficult to procure. The family are as prolific as rabbits, and when chosen by natural selection, which has been much resorted to, the younger branches are mostly of a quality sufficient to be thought worthy of keeping; hence there are innumerable varieties of it, but only one that I know excels the original, and it is the Yorkshire Hero.

**Griffie Castle Regent**, the "King of the class Regents."—This excellent variety was raised in Renfrewshire, and sent to me by a "Brother Bee-keeper," amongst other famous north-country Potatoes, in a bar-and-frame Stewarton hive. I never knew him nor his name through these pages, but the world has been told often enough how I have utilised the hive, and all about the Potatoes, but I think the raiser of this excellent Potato has never advertised it up to its worth. I sent it to the Rev. W. F. Badelyfe, and both with him and myself it ranks highest in the Regent class. Walker's Second Early Regent and the old York Regent are the other sorts to be preferred in lieu of it. Field cultivation only.

**New American Red** is also a Regent. It is a great cropper, and a stain of rose-colour predominates in blotches throughout its flesh when cooked; but it may lose this feature by about February; and it is not fair, generally speaking, to cook the Regent class for correct judgment till that period. This variety is a great cropper, and suitable for field cultivation only. It will quite supersede the American Rose in our English climate and soil.

**Patterson's Victoria**.—Although no favourite of mine, on account of its tendency to subterfuge, it is yet a good field Potato, and well suited for the market table or the servants' hall. Like my Onwards, it will suit the north better than our southern counties.—ROBERT PENN.

## SHOULD WE TRY TO IMITATE THE NATIVE CLIMATE OF AN EXOTIC?

"G. S." in a note upon hygrometers (see page 23), says that in addition to these we also want information "as to the dryness of the countries whose productions we grow." Without presuming for one moment to differ from "G. S." as to the desirability of every cultivator carrying that knowledge about with him, I hope I may be allowed to question the propriety of our attempting to copy exactly the climates of other countries in the cultivation of exotic fruits and plants. One substantial reason why we should not is our sheer inability to do so successfully. If we suppose that the Vine, for instance, has one particular combination of light, heat, and moisture which is best for it, and that the proper quantity of this combination predominates in those countries of which it is a native, then our policy manifestly is to produce a *fac-simile* of these climates if we can; but if we fail to supply the due quantity of any one of these agents—and we do and always must fail in the case of light—then it is certainly not consistent to set the climate of these countries before us as models in regard to the other two agents.

But apart from that altogether, I think it is at least an open

question whether the natural climatic condition of any country is always the best possible for its natural productions. In other words, suppose that some one species is known to be indigenous to only one country in the world, are we, therefore, debarred from thinking that in other countries and under very different circumstances it might attain an equal if not a more perfect degree of development? Taking Astrachan as one of the native habitats of the Vine, and where Humboldt asserts, as quoted by "G. S.," the finest Grapes in the world are produced, here is an epitome of its climate taken from one of our standard works, "The climate of Astrachan is one of extremes." "A dry and parching heat prevails in summer, when the thermometer frequently stands at 100° even in the shade, yet the nights are in general nipping, and the winds deposit the saline particles with which the air is charged in such profusion, that every object appears veiled in the morning with hoar frost. Autumn is of short duration; the winter colds, when the north wind blows, sink the quicksilver to 30° below zero." "Humboldt, indeed, reports (in his 'Climateology of Asia') that finer Grapes do not exist even in Italy or the Canaries than in Astrachan; but these, as well as other fruit and vegetables, however fine to the eye, are watery and insipid to the palate. The wine which is produced here is of equally indifferent quality." It is also a native of Syria, and in some districts is extensively cultivated, yet recent travellers tell us that in point of size the Grapes are greatly inferior to those grown in this country, and that the Grapes of Damascus, 25 and 30 lbs. in weight, are myths. If transported to any of these countries with all their appliances and means to boot, I think it is very problematical if "G. S." or Mr. Meredith, or Garston, or Mr. Johnston, of Glancis, could grow Grapes one whit better, if so well, as where they are.

A most sensitive hygrometer was invented by Mr. Adie, of Edinburgh, which I think would suit "G. S." It is composed of a small bag made of the internal membrane of the common Reed (*Phragmites communis*), and fitted like a bulb to the lower end of a thermometer tube. It is then filled with quicksilver, which rises and falls in the tube agreeably to the rapid and very sensible changes that take place in the contraction and expansion of the membrane from the humidity or dryness of the air. The sensibility of this membrane far exceeds that of catgut.—ASTRACHAN GARDENER.

## THE ANTIRRHINUM AS A DECORATIVE PLANT.

In these days, when the almost-universal cry is for novelty, many old-fashioned plants—for the less valuable because old-fashioned—are pushed aside in a spirit of forgetfulness of the good service done in times past, to make way for new and untried plants, the nature of whose services in the flower garden is at least involved in doubt. One of these old-fashioned plants is the Antirrhinum, of which it is not too much to say that it is one of the most useful summer-flowering plants for the mixed border. I was forcibly reminded of the beauty of the Antirrhinum as a border plant when visiting the gardens of the Archbishop's Palace at Armagh, Ireland, during the past summer. Mr. Welch, the gardener, had large patches of it to cut from, as well as fine bushes growing singly in the borders, and to state that they were masses of bloom is only barely describing their appearance. Scarcely anywhere else in Ireland did such a sight meet my eyes; and how seldom is such a pleasant floricultural vision witnessed in England! The striped flowers among Mr. Welch's collection were particularly striking, and while they were much more varied in character than one could well have supposed, in nearly every instance the novelty of character was added to those deeply-etched desiderata of the florist—size, substance, and form. Mr. Welch said they represented a strain he had obtained from Scotland a few years since, and is his hands, the plants had not gone backwards. Notwithstanding, then, the reputation of the Antirrhinum as a comparative novelty to the professional florist, it is yet being looked after in certain nooks and corners, and when it emerges again from its obscurity, and challenges public attention, as it most assuredly will in the not distant future, it will be clothed in such charms that it will attract our love, and command our admiration.

And now, taking a long flight upward, I come to another place where the Antirrhinum finds a generous home during the period of exile. From East Stonehouse, near Plymouth, I received in 1868, and again in September last, a box of charma-

ing flowers so pretty, so distinct, and so varied, that I found myself contemplating them with an admiration far beyond in degree what I could feel for Scarlet Polyanthuses, yellow Calceolarias, and blue Lobelias, however adroitly the colours might be arranged in a floral picture. Perhaps my regard was mixed with some compassion for the banished flowers; still, they were well worthy of admiration. Mr. James Cox, who sent me these, is weak in striped flowers, but strong as a hardy Norseman with self-coloured and white-tubed flowers. I received flowers from the lateral shoots only, and I could not help thinking what must the flowers from the main shoots have been? In describing the Antirrhinum, the old florists who loved it and petted it as they did their Auriculas, Tulips, &c., used to speak of the tube, the upper lip or cap, the lower lip, and the throat and palate, or that part of the flower where the throat and lip met. One type of Mr. Cox's flowers had pure white tubes and showy crimson lips, with a bar of fiery orange along the palate. In some cases there was a margin of fiery orange along the edge of the lower lip or lappet, and though this appeared to be very pretty indeed, I am not quite certain that one of the old strict school of florists would have allowed it, on the ground that it imparted to the flowers a confused appearance. Some had pale creamy tubes, with a tint of delicate rose spread over them, and more thickly on the lips. There was an amount of variation in these, too, for they differed in the depth of rosy tints, some being very delicate, others having a much deeper flesh, and some approaching a clear rose hue. A few striped flowers were in the batch. The most distinct was a pale primrose-coloured flower, striped with broad flakes of rose. I think Mr. Cox deserves great credit for his care of the Antirrhinum, and the fine flowers he produces from seed.

But it is as a decorative plant for the flower border that I wish more particularly to speak of the Antirrhinum. What splendid masses of gay flowers they yield! in fact, they are so prodigal of bloom, that every lateral shoot furnishes most ungrudgingly its quota of flowers. In most instances the fine rich colours of the Antirrhinum contrast well with the deep green foliage of evergreens and other plants, among which they are placed in a mixed border. A few plants once obtained, their propagation, both by cuttings and seeds, is an easy and interesting process. The method generally pursued to increase them is to take cuttings in August, and place them round the edges of well-drained pots in a close, cool frame. With very little attention they will root, after which they should be inured to the weather by giving air as the plants will bear it. They can be left in these pots till spring in a cold frame, and if kept tolerably dry will neither suffer from frost nor mildew. In April they can be planted out in prepared blooming beds or in borders, or if it is convenient to do so, potted-off singly in March, and planted out in May to bloom. In case of the stock of plants falling short, the tops of the plants potted singly may be taken off and struck in a week in gentle heat, and these will come in well for later blooming in September. These plants can be raised from seed, and a sowing should be made in August in pans, the plants pricked-off into boxes for wintering when large enough, and planted out in the spring to bloom. Antirrhinums should be grown in a deep, rich soil that has been previously well manured, and there they will flourish and bring forth abundant and fine flowers.

In some large kitchen gardens it is the practice to plant out beds of Stocks, Asters, &c., for cut flowers; to these the Antirrhinum should be added for its freedom and duration of bloom. Grown in beds one realises more fully its rich beauty, gorgeous colours and fantastic markings being mingled with delicate and chaste hues. The value of its service who shall measure? but all will be disposed to agree that something can be said in favour of that homely flower—the Snapdragon.—VIA.

### EASTER BEURRE PEAR.

I HAVE an Easter Beurre Pear tree on a south-east wall, and I can assure "G.S." that my experience of it has been anything but unfavourable. It is just coming into full bearing, and both in 1874 and 1869 I had an excellent crop. Not only were the Pears of large size (the world was engaged in building close by did not allow them to be too thick on the tree), but the flavour likewise was excellent. The only fault I had to find was that the fruit ripened sooner than I wished, some requiring to be eaten at the end of November, instead of remaining until March. This fault, however, was in some

degrees due to the store room being too warm. All Pear-fanciers know that a good store room, with a north aspect and proper provision for fresh air, combined with security against frost, is essential if Pears are to be sent to table in prime condition.—E. M. B. A.

We have the Easter Beurre here growing as an espalier, also against a wall with an exposed western aspect, somewhat shaded by an Oak tree, and in both cases the result is much the same. In quantity there is about half a crop, and in quality not more than half of the fruit are what we consider, in first-rate, or fit to send to table; the remaining portion of the fruit, though good to eat, being somewhat blotched and dark in colour. A few of the fruit are liable to decay in places before becoming quite ripe, and should any remain till a little over-ripe, some turn mealy, as mentioned by "G.S." I should certainly prefer the exposed west wall to the espalier, if the shade were removed. This place is about twelve miles north-west of York.

I also found this Pear at Hatchford, in Surrey, twenty miles south-west of London, in the gardens I had then charge of, belonging to the late Dowager Countess of Ellesmere; on espalier trees it was in every way much the same as above described, perhaps a little more fruitful. The trees in both places, as regards bearing, are all that can be desired. From my experience, the great drawback of this Pear is the small quantity ever in good order for the table; and I am strongly inclined to think that in both places it requires a wall having an aspect lying between south-east and south-west in order to bring it to perfection in quantity, and such an aspect is, perhaps, most wanted here.—W. WALLIS, *Kirby Hall, York.*

### DIAGONAL PEACH AND PEAR CORDONS.

It is now sixteen years since my patriarchal Peach cordons were first planted, and as I pruned them the other day the following thoughts arose:—

Sixteen years!—half a generation of men; in such a period of time experience, to be profitable, must be acquired. After so long a date there can be little doubting. When these diagonals were first planted, how many, and what kind of orchard houses were there in England? Even half sixteen years ago such a small orchard house as I have just planned for a friend would have been scouted. Nevertheless, in what was last autumn but a mere back yard, there are now fine bearing Peaches in pots, such as Early Beatrice and Early Rivers, unknown far less than half sixteen years ago, and fine diagonals obtained ready to bear a crop. July and October Peaches and Nectarines, finer than in Paris, in an unpromising back yard! And last week Mr. Rivers wrote to me of his favourite orchard house, a heated one I think, 80 feet long, and having diagonal Peach cordons on the back wall, with pots in the borders. Such a combination cannot be matched in all the old-fashioned and expensive forcing Peach houses, nor in any of the now-existing ones. Yet when my patriarchs were planted the very name, now general and chosen by myself, of "diagonal" was unknown in this country, for the simple reason that there was no single pure cordon, such as mine are, even on the open wall, much less in orchard houses. At that date only M. Dubreuil's "first system of oblique cordon" was practised, and that on a very small scale in France, and not at all popular then; nor was M. Grin's close pinching then known or published, he being engaged in perfecting it.

These patriarchal Peach trees were first adapted to Dubreuil's system, but considering it a loss of space, on the first report of M. Grin's close pinching of the shoots I combined the two systems, and gradually developed the whole into the "alternate system," which is now pretty well known and practised.

I am going to try a modification of Dubreuil's first system, which has long shoots, by laying in two very long shoots on each spur on the open wall, pruning alternately; and I hope to obtain a sufficient development of tree to secure vigour for outdoor work. My friend, Mr. Radcliffe, is doing much the same, and, no doubt, will do well, as he understands the matter.

As to diagonal Pear cordons, nothing can be better adapted for the open wall. Some, double-worked, procured from Mr. Rivers, obtained here first prizes their first year of bearing and second of planting. Some of the sorts were Summer Beurre d'Arenberg, which is as good as the later kind; Huyhe's Prince Consort (double-worked, which must not be forgotten),

a magnificent fruit; General Todleben, large and aromatic, with rose-coloured flesh; Marie Guise, a March Pear, very fine, still in the fruit room, and many others, these being what I thought the best.

There can be no comparison as to amount of crop between these diagonal and horizontal cordons, as is evident from the development, and diagonals are as easy—nay, far easier to prune. Diagonals are being generally adopted in this island, as they have been so successful in our gardens.—T. BRÉHAUT, *Richmond House, Guernsey.*

## GARDENS AND GARDENING AROUND HAMBURG.—No. 3.

CONSUL SCHÜTTE'S, FLOTTBECK, HOLSTEIN.

THIS is a neat little place of a few acres, the principal features of which consist in the cultivation of hardy fruits. Apple and Pear trees are cultivated to a good extent, and great attention is paid to their training and other management. The collection of pyramidal Pear trees, from 6 to 12 feet in height, was all that could be desired, and well laden with fruit, the varieties which seemed to succeed best being our own pears, Louise Bonne of Jersey and Marie Louise. Some trellises, about 5 feet in height, were finely covered with Pear trees, planted about 2 feet apart, and trained up to single, or sometimes to two stems, at an angle of 45°, a sort of "cordon oblique," as the French would call it. These, spurred-in somewhat closely, were very perfect examples, and looked extremely well, the trees in most cases being well covered with fruit. Apple trees trained in the same fashion did not look so well. Round the edgings of the walks were planted Apple trees from 3 to 4 feet apart, and trained as cordons, some of the trees being full of fruit, and extremely pretty they looked, carefully tended as they were here. It is worthy of remark that those grafted on the French Paradise succeed better than those on the ordinary stock. We remarked the difference between one line and another, and Herr Windell, the overgartner, stated that it was owing to the variety of stock; that he had always observed Apples grafted on the French Paradise come into bearing much sooner than those on the common Dutch Paradise. The French Paradise is, in fact, the favourite Apple stock in this part of northern Germany, which, be it remembered, is much colder in winter than any part of England. We also observed here a very creditable houseful of Grapes, much better than is generally to be seen out of our own beloved land.

CONSUL WESSELHÖFT'S, TEUFELSBRÜCKE, ALTONA.

THIS is another place greatly celebrated, and justly so, about Hamburg for its fruit culture. Here it is bothhouse fruits—Grapes, Paches, &c., which form the chief feature; and we feel bound to say that we have in very few instances on the Continent seen better examples of Grapes than we saw here, vying in many respects with our English productions.

The situation of the gardens is somewhat low, which is in the first place disadvantageous to Vine culture. Herr Wesselhöft has, as far as we remember, three vineries in all, in which we observed examples of all our approved English sorts, and many of them doing remarkably well, all trained and treated on the most approved principles, or according to the dictum of *THE JOURNAL OF HORTICULTURE*, of which Herr Wesselhöft is a constant reader. Some examples of Muscat Hamburg were especially fine; Muscat of Alexandria, however, was almost a failure on the planted-out Vines, every bunch having shrank, and it always does so we were told, while other varieties in the same house succeeded so well. We attributed the cause of this to irregularity of heat or moisture about the roots while the fruit was progressing. The same variety in a pot was very good, as likewise some other examples of Vines in pots. Herr Wesselhöft obtained a gold cup at the great Show for an exhibition of fourteen varieties of Grapes.

We next find ourselves in a very neat and airy span-roofed orchard house, devoted principally to Peaches, &c., and on one side of this house, plunged out of doors, was a large quantity of pretty little Apple trees in pots, bearing magnificent crops of very handsome fruit. The trees were of the bush form, about 2 feet high, worked on the French Paradise stock. The examples of White Calville (*Calville Blanche*), &c., were very fine, such as would have delighted a Rivers. In the grounds were a very fine lot of pyramidal Pear trees, bearing, however, we were sorry to see, but very little fruit, the leaves nearly destroyed by the ravages of some insect. The various flower beds were

also filled with the usual display and well attended to, everything betokening the employment of much care and a sound knowledge of the business on the part of Herr Wesselhöft, who, we believe, is his own gardener.

PALMAILLE 22, THE RESIDENCE OF HERR POTS BAUR, ALTONA.

THIS is a small villa garden, lying off the principal street of Altona, which has an air of considerable grandeur about it through its great width and the fine lines of trees along both sides of it. The overgartner at this place is Mr. Hinrichs, an old Chiswick man, and to him we are indebted, for the most part, in accompanying us to the various places for a great portion of the information we were enabled to acquire. Here Mr. Hinrichs is adopting many of our English modes of gardening, especially in respect to Grape culture, and although the Vines are yet young, they promise well. The garden lies high on the side of a steep bank, so that gardening is carried on with difficulty. It is very tastefully laid out, we believe by Herr Jürgens, the great landscape gardener of Hamburg. In the houses we observed some nice examples of a plant not much known amongst us, yet very suitable for autumnal decoration of the conservatory—viz., *Scutellaria Mociniana* or *majestica*, a *Justicia*-looking plant. Here also Mr. Hinrichs had some fine plants of *Torenia asiatica* perfectly covered with bloom, standing in pots along the edges of the walks. But the chief ornament is the collection of Orange trees in tubs, which were awarded the gold medal at the great Exhibition.

FLOTTBECK PARK, HOLSTEIN.  
THE SEAT OF FRÄU SENATOR JENISCH.

THIS is a noble demesne of considerable extent. It is what we would call in England one of our fine old places, with a history attached—a history, too, of gardening. During the life of the late lamented Senator in years gone by, before gardening had become quite so popular as it is now, the gardens at Flottbeck and its talented gardener, M. Kramer, had become celebrated throughout the Continent and also in this country. The place is altogether old and venerable, the park surrounding the mansion spacious and varied, with some fine old Oak trees of great size. The gardens are old, and the houses old, their number being great, and some of them very lofty and large. The Palm stove, in the centre of the long range, when it was erected must have been considered a fine building, and it would be so still with a little burnishing-up. The collection of plants in the houses here is so extensive, so varied, that to describe them would be impossible. It is like a great private botanical garden, and, indeed, there are many botanical gardens which do not possess a tithe of the number of plants. Here we found many old plants which we had almost forgotten, and many we had never seen, and the new and rare plants of the Lindens and Veitchs were here also. One of M. Kramer's sons is at present a plant-collector in Japan, whence he has sent home, whilst employed by Messrs. Veitch, many fine plants. M. Kramer was the largest exhibitor of plants at Hamburg, and obtained the greatest number of prizes, and in his collections were some admirably-grown specimens of fine-foliated plants, Palms, Ferns, Orchids, &c. Conspicuous amongst the great mass of plants here—conspicuous to us, perhaps, because we seldom see them in this country, were the finely-flowered specimens of *Hemantus cinnabarinus* and *punicus*. The large glowing scarlet umbel-like flower-heads of these plants were truly magnificent; the former is superior to the latter, being dwarfer, larger, and more showy. They seem to flower under the younger M. Kramer's care with the greatest ease. It is a plant we recommend our gardeners to take to. Amongst others we noticed *Aphelandra Roeziana*, with its beautiful silvery leaf, doing well, *Cucurbita ribriealis* and *Roseoana*, useful decorative plants, lasting such a long time in flower; also *Aloeia Jenningsii*, a fine plant 2 feet across; *Aloeia metallica*, Veitchii, &c.; and very large plants of *Caladiums*, *Sanchezia mobilis*, and the new *Coleus* 6 feet in diameter.

The collection of Orchids is likewise very extensive, and in good condition, but especially so that of the *Anaethochila*, which were very rich. What a pity these plants are so little looked after now. Here also we found *Sarracenia purpurea* growing like a very weed in the cold frames, in some places half smothered with chickweed, and yet as vigorous and healthy as need be. Who can refuse to cultivate this pretty and interesting plant? Here, again, we found our wonder, *Disa grandiflora*, in all its grandeur, and fully finer than those already noticed, many of M. Kramer's plants bearing six, seven, and

eight flowers on a single stem. The cultivation of this plant seems with our German friends the most easy thing in the world, requiring, as they say, scarcely any attention. M. F. Kramer kindly promised to send us an exact account of his method of treatment for publication in these pages, so that if this should meet his eye it will, perhaps, serve to remind him of his obligation to our readers.

A plant of *Solanella arborea* attracted our notice somewhat by its intense depth of colouring—almost crimson. We were informed that the plant had been treated to some doses of salt and superphosphate of lime. If this was a genuine case of colouring through the agency of these substances, the subject is worthy of further trial and investigation. We noticed *Vitis Thunbergii atropurpurea*, with its deep crimson foliage, as a very ornamental plant. We may note also, as an important fact, that M. F. Kramer had secured a sport from *Teleanthus paronychioides*, indistinguishable from—indeed, exactly the same as, *T. amabilis* sent out by Messrs. Vercchaffelt a few years ago.

In the kitchen garden some lines of espalier Pear trees were very heavily laden with very fine fruit, and throughout the place there reigned an air of good, sound, practical gardening, reflecting credit on the talented chiefs.

#### BOOTH & CO.'S NURSERY, HAMBURG.

This is situate close to Flotbeck on the opposite side of the road, and is of very great extent, but now being much dismembered through the erection of a residence in one part of the grounds for one of the partners of the firm. This is a very old-established nursery of world-wide popularity, containing a most enormous collection of varieties of all hardy forest and ornamental trees and shrubs. Here the grafting of Oaks, Acers, Elms, &c., has been and still is carried on to a great extent. In the grounds were many fine and very interesting plants, seldom to be seen or even heard of elsewhere. It is a pity they should be so much neglected. A noble specimen of *Quercus Robur var. alba*, upwards of 40 feet in height, attracted our attention—by far the largest and most beautifully variegated Oak we had ever seen, and a perfect tree. Another tree, *Acer pulcherrimum*, was very striking and unique in its character. We have notes of many others which, however, it is needless to repeat here. A hedge or screen, 3 feet in height, of the different varieties of Clematis, in full flower in front of the manager's cottage, formed a gorgeous sight, being one mass of lovely bloom; Clematis Jackmanni proved by far the most attractive, and in contrast to this the white *C. florida* (double).

There is a great extent of glass; the houses are, however, now becoming very old, and are not very handsome. They contained a fine and well-grown collection of Palms, Camellias, and general stove plants; also an immense number of Vines in pots. In the flower beds in front were masses of Camass in great vigour, amongst which, conspicuous by its height and the bright yellow blossoms, we observed a variety named *Premices du Nice*, which we recommend. Like soldiers in line, along the front of the principal range of glass, were a great number of very handsome regularly-formed standard Bay trees in tubs, which had a very stately appearance. These are plants always grown and seen better on the Continent than in this country.

#### TRAINING PEACH TREES UPRIGHT.

YOUR correspondent, "J. G.," seems to be "rather sceptical" as to the success of upright-trained Peach trees. I am not surprised that he should be so if he imagined that Peach trees, when trained upright, should be pruned in precisely the same manner as the Pear or the Cherry. May not a fruit tree have its branches trained upright, and yet receive that treatment which is most suitable to its habit and growth? If you look at a Peach tree trained after that method which gardeners in general delight to adopt, you will perceive that one or more branches about the centre of the tree will be trained upright, and that these branches will be just as fruitful as any other portion of the tree. If a portion of a Peach tree may be successfully trained upright, why not the whole tree? Eight years ago, as I was watching my gardener re-arrange the branches of a large fan-trained Peach tree, I put to him this very question. His reply in effect was, "I can't say why it should not be done, and I should very much like to try the experiment." Accordingly, an Early York Peach was obtained. It was intended to carry this tree up with three branches of equal strength. However, the right and left branches took the

lead, and reached the top of a 12-feet wall in 1868. These were trained after the herring-bone plan, so well described by Mr. Radelyffe in the pages of "our Journal," and they just occupy a yard of wall in length. The centre shoot was kept down, and it supplied the base of the tree with bearing wood. Last year this tree gave forty-five fine fruit without exhibiting the slightest signs of exhaustion, and it appears to be quite prepared to do as much or more this season. I dare not allow the fan-trained trees to bear so largely, because they have only one set of roots to sustain their wide expanse; while the double cordon possesses roots equal almost to any strain you might put upon their energies.

The rule to be observed in thinning fan-trained Peach trees is to leave one fruit for each square foot of wall occupied by the tree. This is quite a sufficient crop for the tree to carry annually, if fine high-flavoured fruit are desired. This rule allows of thirty-six Peaches for each yard in length of a 12-feet wall; but an upright-trained tree possesses such ample root power that it is able to support unimpaired a larger crop—say from fifty to sixty fruit. What an enormous crop this would be, three hundred fruit from 6 yards of wall in length! The upright training of the Peach tree possesses these advantages:—

1st. The wall is completely covered with fruit-bearing branches in six or seven years.

2ndly. A larger crop can be obtained year by year than by any other mode of training.

3rdly. It enables those who have but a limited extent of wall to grow early, mid-season, and late Peaches, and so have a snit-able succession of this most exquisite fruit.—C. M.

(To be continued.)

#### ROYAL HORTICULTURAL SOCIETY.

THE Council have the satisfaction of announcing that arrangements have been made with Her Majesty's Commissioners for the Exhibition of 1871 (in connection with the proposed annual International Exhibitions to be held by the Commission) for the completion of the gardens and arcades, without entailing any liability on the Society. The Commissioners will also construct conservatories on the upper arcades, by which the first floor of their permanent exhibition buildings to be erected on the annexes adjoining the central arcades will be put into direct communication with the Society's conservatory.

These works will be completed before the 1st of May, 1871, the date fixed for the first of the series of International Exhibitions. The exhibitions will consist solely of objects which have some special interest or recommendation; and while pictures and other attractive works of art will form part of each exhibition, selected manufactured objects, of a few classes only, will be admitted in any one of the series, so as to extend this branch of the exhibition over a sufficient number of years to allow time for improvement before the same class of objects is again brought forward.

Whilst these exhibitions will be held in connection with the gardens of the Society, which will participate in any profits that may arise from the exhibitions, not only will the present rights and privileges of the Fellows be maintained, but considerable advantages over the public, as respects admission to the exhibition itself, will be given to them. Another subject in which the Fellows are interested, and may look for information from the Council, is the progress of the Royal Albert Hall. By means of it the Society hope to obtain an additional access to the garden, and better accommodation for their shows, meetings, library, reading-room, &c., and they cannot but feel that the prosperity of the garden, and to some extent that of the Society itself, must be materially influenced by the success which may attend this and the other undertakings, which Her Majesty's Commissioners have entered upon on their estate. The Council have therefore pleasure in informing the Fellows that the building is proceeding with rapidity and success, and that there is no doubt that it will be finished and ready for opening by the same time as the new exhibition buildings on the annexes.

#### PROTECTION FOR SMALL BIRDS.

I WISH some of the able contributors to "our Journal" would write in favour of protection for small birds. Can the very numerous admirers of British songsters be aware of the cruel system carried on by trapping birdcatchers from Manchester and other large towns? They come here (Hereford) three times in the course of the year—viz., early in spring,

breeding time, and autumn. I appeal to the ladies, just to imagine a nestful of young Goldfinches starving through the old birds being caught, or, if one only is caught the young die just the same, their remaining parent pining miserably away; and all just to enable some tramping vagabond to get intoxicated on his route. I must do respectable dealers the justice to say, I think as a rule they do not encourage birdcatching in nesting-time—at least, I hope not. If farmers were alive to their own interests they would not allow the destruction on their lands of such a pretty and useful bird as the Goldfinch.

Surely little birds are as worthy of protection as terriers' tails and ears, to trim which is declared by law to be "cruelty to animals."—C. Herford.

[We, and many able contributors, have pleaded for small birds, Goldfinches and all other soft-billed birds are more than harmless, for they live either upon insects or the seeds of weeds. Even Bullfinches, Titmice, and other bad-destroyers do good in the same way at some seasons of the year, and the economical, reasonable practice would be to have some persons employed to scare them away during the bud-opening period in spring.]

## LIST OF PLANTS IN FLOWER DURING DECEMBER.

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|--|--|
| Dec. 1. <i>Anemone japonica</i><br><i>Chimonanthus fragrans</i><br><i>Arabis lucida</i><br><i>Linum catharticum</i><br><i>perfoliatum</i><br><i>Achillea millefolium</i><br><i>Alyssum saxatile</i><br><i>compactum</i><br><i>Clematis Jackmanni</i><br><i>Nigella hispanica</i><br><i>Viola odorata</i><br><i>Virginian Stock</i><br><i>Artemisia vulgaris</i><br><i>maritima</i><br><i>Dianthus deltoideus</i><br><i>Maria Pare</i><br><i>superbus</i><br><i>Plumbago capensis</i><br><i>Primula acutis</i><br><i>2. 4. Terebinthaceae</i><br><i>Viola herbacea</i><br><i>argentea</i><br><i>Helleborus niger</i><br><i>viridis</i><br><i>Ammonium alatum</i><br><i>Trifolium Uvaria</i><br><i>Antirrhinum majus</i><br><i>Leptodermis densiflora</i><br><i>Viola spiciensis</i><br><i>Levonia Erivus</i><br><i>Aster chinensis</i><br><i>Sedum carolinense</i><br><i>Malva moschata</i><br><i>Chrysanthemum variegatum</i><br><i>Phlox Drummondii</i><br><i>Rosa odorata</i><br><i>7. 11. Aconitum compactum</i><br><i>serotinum</i><br><i>Agavea ciliolata variegata</i><br><i>Delphinium Barlowii</i><br><i>Casipatula carpatica</i><br><i>garganica</i><br><i>Asperula odorata</i><br><i>Calandrinia ambellata</i><br><i>Astragalus major</i><br><i>Betonica stricta</i><br><i>Primula alpinia</i><br><i>Hieracium alpinum</i><br><i>Aster Amellus</i><br><i>Cystidia japonica</i><br><i>Ajuga reptans</i><br><i>reptans variegata</i><br><i>Pentstemon coarctatus</i><br><i>11. 11. Cichorium Edinburg</i><br><i>Verbena verba</i><br><i>Valeriana trilobata</i><br><i>Ochthocarya pulcherrima</i><br><i>Phlox Comata de Home</i><br><i>Daphne Laureola</i><br><i>Erica carnea</i><br><i>Rosa Bonington Queen</i><br><i>Hamamelis virginica</i><br><i>Kerria japonica</i><br><i>Calanthe scabra</i><br><i>Omphalodes verna</i><br><i>Statice Ameria</i><br><i>Ranunculus repens</i><br><i>Phlox verna</i> | Dec. 11. <i>Nepeta violacea</i><br><i>Myosotis alpestris</i><br><i>Schizanthus pinnatifida</i><br><i>Stenactis speciosa</i><br><i>Tuacum vulgare</i><br><i>Thymus officinalis</i><br><i>Veronica lucana</i><br><i>spicata</i><br><i>dentata</i><br><i>tectoria</i><br><i>caucasica</i><br><i>stricta</i><br><i>Lagurus ovatus</i><br><i>Hesperis matronalis</i><br><i>Cytisium argenteum</i><br><i>Matthiola annua</i><br><i>Ja-sunium nudiflorum</i><br><i>Erysimum F. rollsianum</i><br><i>Galearia officinalis</i><br><i>Gilia triflorus</i><br><i>Lupinus sativus</i><br><i>11. 11. Dianthus Caryophyllus</i><br><i>Hedera helix</i><br><i>campanulata</i><br><i>harbatus</i><br><i>Cistus vulgaris</i><br><i>Colchicum bulbocodium</i><br><i>Cypripedium</i><br><i>Ch-lone barbata</i><br><i>Colchicum autumnale</i><br><i>Lycalis coriaria</i><br><i>Aster ciliatus</i><br><i>Pyrola lichenium</i><br><i>Silene schaffii</i><br><i>Anchusa italica</i><br><i>11. 11. Cymbalaria</i><br><i>Eubothra macrocarpa</i><br><i>graviflora</i><br><i>Pot-putilla alba</i><br><i>Polyanthus Double Sweet</i><br><i>Rubellia lucida</i><br><i>Sedum dentatum</i><br><i>Niebolii</i><br><i>Dracopis grandiflora</i><br><i>Cheranthus frutescens</i><br><i>Alchemilla alpina</i><br><i>Coronilla varia</i><br><i>Leucostema tomentosum</i><br><i>Brachycome trifidolia</i><br><i>Cacalia aurea</i><br><i>Calandrinia speciosa</i><br><i>Louisa Perryannum</i><br><i>Calanthe tinctora</i><br><i>11. 11. Rholodendron hitatum</i><br><i>Coulara de pressa</i><br><i>Aster lucidus</i><br><i>Pentstemon venosus</i><br><i>Aronia umbellata</i><br><i>Ruta graveolens</i><br><i>Viburnum Toxus</i><br><i>Alyssum maritimum</i><br><i>Atriplex hortensis</i><br><i>Anagallis grandiflora</i><br><i>Hydrangea japonica</i><br><i>Crocus boryan</i><br><i>Doronicum caucasicum</i><br><i>Rose, Crispum China</i> |
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—M. H., Acklam Hall, Middlesbrough-on-Tees.

DEATH OF MR. BROOME.—We regret, in common with many others, to learn that Mr. S. Broome, gardener at the Inner Temple, died of apoplexy on the morning of Saturday, the 22nd inst. He was born on the 29th June, 1806, at Weston-under-Lizard, Staffordshire, and served his apprenticeship in the gardens of the Earl of Bradford. Afterwards he came to London, to the Temple, where he continued gardener for thirty-eight years—that is, until his death. He was

one of the first to bring the Chrysanthemum before the London public, and boasted that last year's show was the best he had ever had. He has been the means of promoting nearly all the Chrysanthemum Societies round London, and some in various parts of the country, and by encouraging a taste for flowers he effected much good amongst the working classes in the metropolis, and especially in the ragged schools. He was the author of a work on the culture of the Chrysanthemum, first published in 1857, and he was also a contributor to various gardening journals. In Mr. Broome we have lost a most friendly contributor, and many will miss a kindly companion.

## RENDLE'S PLANT PROTECTORS.

In your impression of the 13th inst. there is a letter signed 'C. P. Peach.' He does not say that 1-inch boards are better than earthenware; he cannot say that. All Mr. Peach says is that the inch boards are cheaper. How does he prove that they are cheaper? His lowest price is 1s. 2d. per foot with boarding 1 inch in width, fixed up with wire and staples. My price for a 10-foot length is 10s.—W. E. RENDLE.

[Here this subject must close, except in our advertising columns.—Eds.]

## WINTER-FLOWERING ORCHIDS.—No. 2.

### ONTOGLOSSUMS.

THE collectors who have been for some years past exploring the high mountain ranges of Mexico, Peru, New Granada, and Central America, have largely increased and enriched our collections, both by the introduction of new species of this genus and the reintroduction of some very beautiful kinds which had been lost to cultivation through unskillful treatment. Many species of *Ontoglossum* are found growing at an altitude of 7,000 feet, or even more. Such being the case, it is but natural to infer they cannot require great fire heat; thus in growing this and other genera from similar habitats, the great drawback to an Orchid house, as it used to be understood—namely, unbearable heat, is entirely removed.

*Ontoglossums*, with but few exceptions, succeed well in a temperature of from 40° to 55° during the winter months, and in summer the nearer the thermometer can be kept to 65° or 70° the better; at no period of the year should they be subjected to a dry atmosphere, but by a judicious application of water, a moist and cool, but quiet, atmosphere should be maintained; plenty of fresh air must circulate through the house, but avoid draughts and rough currents of wind. During summer the direct rays of the sun must be kept from them, and to meet their requirements in the most effectual manner a house with a northern aspect is preferable to any other, for in a house thus situated a cool, moist air can be maintained, even in the hot parching days which we sometimes experience in the summer, at which time, of course, no fire is necessary. In a house facing the north I have grown many species and varieties of this and other genera with great success at the temperatures given above, and, saving in very cold nights in winter, some of the ventilators have been open day and night all the year round.

In potting *Ontoglossums*, drain the pots well, and for potting material use only good, sweet sphagnum moss and fibrous peat, which may have a small portion of sharp silver sand mixed with it with advantage. Special care should also be taken to keep the pseudo bulbs well above the rims of the pots, and their bases clear of the soil, so that young growths do not get buried or rotted just after starting, which, of course, is their most tender age. In a state of nature they are not so buried, for so loosely do they grow amongst the moss upon the forest trees, that a lasso skillfully thrown will bring down vast quantities at each time.

Several more species than those noticed here are winter bloomers, but the best are given. Those which are omitted are either uninteresting, or such as I have not considered permanent in their habit of producing their flowers at this particular season.

*ONTOGLOSSUM ORANKE*.—One of the best known, and certainly the most showy of the whole genus; it is usually considered an autumn-flowering kind, but, fortunately, amongst the great quantities which have been imported a variety has appeared which, flowering from the old or fully-formed growth, gives us its charming blooms during December and January. The pseudo-bulbs are dark heavy green, supporting a pair of broad coriaceous leaves of nearly the same colour. Soap

erect, bearing from three to six or more flowers, which are oftentimes 6 inches in diameter; the ground colour of the sepals is orange yellow, barred the entire length with rich chestnut brown; petals bright brown, broadly tipped with orange yellow; the lip is large, white, barred and spotted with brown. It is a magnificent species, a native of Guatemala.

**ODONTOGLOSSUM ALEXANDREI.**—The honour of introducing this splendid new species is due to Mr. Weir, the then collector for the Royal Horticultural Society, and no more fitting plant could be dedicated to our lovely Princess. As a species it is nearly allied to *O. Pescatorei*, but, besides other differences, up to the present time it has shown no disposition to produce a branching flower-spike, which is a marked character of that plant. The pseudo-bulbs are smooth, ovate, slightly flattened, dark green, oftentimes tinged with red. The leaves are usually two in number, linear-lanceolate and pointed, erect, about a foot long, and dark green in colour. Raceme bearing from six to twelve flowers, which are some 2 or 3 inches in diameter. Sepals and petals pure waxy white, the edges undulated; the lip very variable in shape, white, spotted with golden brown, and stained with yellow at the base and crest. It is an abundant flowerer, and very easily managed. Native of New Granada, about Bogota, at 8000 feet altitude.

**ODONTOGLOSSUM BLUNTII.**—This, by some authorities, is considered worthy of specific rank, but, according to my judgment, it can only be a variety. Whichever is the correct view, however, matters little to the cultivator. It resembles the preceding in every respect, saying that the sepals and petals are tinged with rose, and, as well as the lip, spotted with rich brownish purple. There are several named varieties of these plants, all of which are well worthy of cultivation for winter decoration. Native of New Granada, at the same altitude as *O. Alexandreii*.

**ODONTOGLOSSUM TRIUMPHANS.**—At present very rare in collections. The growth is somewhat like *O. luteo-purpureum*, yet distinct from that plant. The flowers are upwards of 3 inches in diameter; the sepals and petals are banded with dark brown upon a rich yellow ground; the lip is sometimes white, or tinged with yellow, with a few brown blotches. Native of New Granada.

**ODONTOGLOSSUM DICTYONENSE.**—Although this species is not among the most brilliant-coloured of its tribe, it is, nevertheless, an abundant bloomer. The pseudo-bulbs are 3 or 4 inches long, somewhat flattened, and bear two or three sword-shaped, bright green leaves. The flower-spike is erect, about 2 feet in length, half of which is naked; the sepals and petals are usually light green, spotted and barred with brown of various shades; the lip is white, shaded with rose or purple. It continues a long time in perfection, and is well adapted for wreaths for the hair. This plant is found in Guatemala at considerable elevations.

**ODONTOGLOSSUM MEMBRANACEUM.**—A beautiful dwarf-growing plant which delights in a moist, cool atmosphere, and is well adapted for growing in miniature hanging-baskets. The pseudo-bulbs are small, pale green, supporting a solitary oblong-acute leaf of the same colour. The scape is radical, bearing from two to five flowers, which are delicately scented; the sepals and petals are somewhat oval-oblong, creamy white, with transverse lines of reddish spots at their base; lip large, white, with a yellow claw, and faintly streaked with red at the

base. It is a veritable gem, and very easily managed. Native of Mexico.

**ODONTOGLOSSUM CERVANTESII.**—In habit of growth this plant resembles the preceding. The sepals and petals are rose-coloured, and barred with reddish spots; the lip is somewhat heart-shaped, and destitute of the spots of *O. membranaceum*, to which, however, it is very closely allied. It is a native of Mexico.

**ODONTOGLOSSUM MACULATUM.**—This is a dwarf, compact-growing kind, with oblong-compressed pseudo-bulbs, and supports but one leaf, which is oblong-lanceolate and somewhat sharp-pointed, light green in colour. The racemes incline to be pendulous, some 10 inches in length, and bear from six to twelve flowers, which vary in the brightness of their markings; the sepals and petals are brown inside, marked with greenish yellow; the lip is heart-shaped, white, or sometimes greenish yellow, dotted with brown. Native of Mexico.

**ODONTOGLOSSUM LUTEO-PURPUREUM.**—In the colour of its flowers and their markings this kind varies considerably, and several of the more peculiar have distinct names. The pseudo-bulbs are about 4 inches in length, somewhat ovate, and bear a pair of sharp-pointed, sword-shaped leaves, some 10 or 12 inches long. The sepals and petals are oblong-lanceolate and sharp-pointed, rich chocolate brown inside, tipped with yellow; the lip is panduriform (in some varieties much fringed), white in front, blotched at the base with the same colour as the sepals and petals. This is a very fine species, and an abundant bloomer; it grows at 7-8000 feet altitude in New Granada.

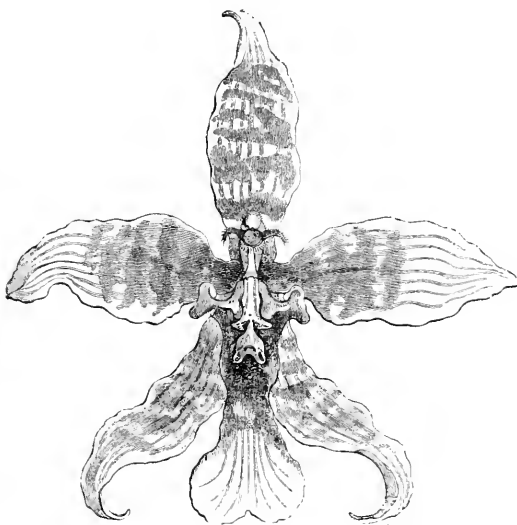
**ODONTOGLOSSUM INSELEYI.**—The leaves and pseudo-bulbs of this plant are similar to those of *O. grande*; the flower, however (represented in the accompanying engraving), especially the lip, is very distinct. Sepals and petals oblong, pale greenish yellow, barred throughout their entire length with bands of reddish brown; lip narrow, slightly turned back, bright yellow, and bordered with red spots. Its gay flowers are extremely ornamental in winter. Native of Mexico.

**ODONTOGLOSSUM ROSAII.**—There are many varieties of this species, some are magnificent, and all are very beautiful. It is a dwarf-growing plant, with ovate pseudo-bulbs, flattened at both edges, bearing a solitary leaf. The scape is from one to three-

flowered. The sepals and petals are yellowish white, the former streaked and spotted their entire length with reddish brown, whilst in the latter they are only barred part of their length, and that is at the base; lip large, two-lobed in front, and pure white. This lovely plant is a native of Mexico.

**ODONTOGLOSSUM PULCHELLUM.**—There are several varieties of this plant; as a matter of course everyone will select the largest-flowered. The pseudo-bulbs are oblong, flattened, and bear a pair of narrow, linear-lanceolate leaves, about a foot in length, and dark green. The scape is erect, about as long as the leaves, supporting its delicately-fragrant snow-white flowers, which are stained at the base with orange. It lasts a long time in full beauty, and is one of the most chaste of the genus.

**ODONTOGLOSSUM KRAMERI.**—A most distinct species, and being named after an old acquaintance it possesses much interest in my eyes. It is not usually considered a winter-bloomer, but I have seen it in fine flower in December. In shape the



Odontoglossum Inseleyi.

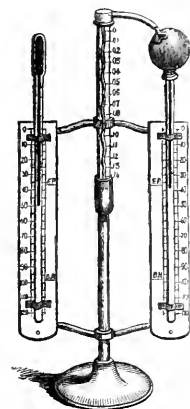
pseudo-bulbs and leaves resemble *Trichopilia snavis*, but instead of being dark, heavy green in colour, and leathery in texture, as in that plant, they are light or yellowish green, and the leaf somewhat thin. The spike is drooping, and the flowers, although not large, are very handsome, being yellowish white in the sepals and petals. The lip is faint violet, with a double crescent-shaped line of brown near the base, where it is tinged with yellow. It is a native of Costa Rica, and succeeds best if treated to a little more heat than recommended for the other species.—EXPERTO CREDE.

### THE ATMOMETRO-HYGROMETER.

This instrument is designed to give, in a simple, accurate, and practical form, the information desirable as to the temperature and moisture of the atmosphere, and also the rate of evaporation from any moist surface. It consists of a combination of two instruments—1, The wet and dry bulb thermometers, or what is known as Mason's hygrometer; and 2, another instrument (not so well known), called an atmometer, invented by the late Professor Leslie, of Edinburgh.

The following is the construction of the new instrument:—A pair of sensitive thermometers, having thin cylindrical bulbs, are fixed on a stand, in an inverted position, as shown in the woodcut; this position of the thermometer bulbs gives more perfect isolation from the temperature of the resting-place and surrounding bodies affecting their indications; they are fixed sufficiently apart so as not to affect each other. One of Leslie's thin porous clay bulbs is fitted to the frame, so as to cover and enclose the bulb of one of the thermometers. In the centre of the stand, between the thermometers, a small glass-tube reservoir for water is fixed; a thread of cotton wick reaching to the bottom of this tube is conveyed to and rests upon the porous bulb, which is thus kept continuously supplied with moisture by capillary attraction. The bulb of the thermometer thus enclosed is cooled by the evaporation of water from the surface of the porous clay bulb, in the same way and to the same extent as if it were covered with wet muslin in the ordinary way, and gives, by inspection, all the indications of the wet-bulb thermometer; these, with the indications of the dry-bulb one, form together Mason's hygrometer. From the indications of this instrument, as is well known, and by the use of Glaisher's "Hy-

grometrical Tables," the dew point and state of the air as to moisture are easily obtained and determined. The glass-tube reservoir in the centre of the stand is furnished with a graduated scale. Each degree of water in the tube is equal to one-thousandth part of an inch of depth of water on the evaporating surface or area of the porous bulb. These degrees are accurately determined, upon the plan recommended by Leslie, for atmometrical degrees. The scale of degrees reads from (0) zero, at the top, downwards—.01, .02, .03, and so on; ten of these atmometrical degrees, marked .01, are equal to one-hundredth part of an inch of depth of water on the evaporating surface or area of the porous bulb; twenty of these atmometrical degrees marked .02, are equal to one-fiftieth of an inch of depth of water on the area of the evaporating surface; one hundred of these atmometrical degrees, marked .10, are equal to one-tenth of an inch of depth of water on the



area of the evaporating surface, and so on. By successive observations of the level of the water in the reservoir with the scale on it, the rate of evaporation is shown. Should these observations be made and noted daily, then the daily atmometrical degrees added together give weekly, monthly, and yearly, the depth of water evaporated, or the amount of the drainage by the atmosphere from wet or humid surfaces.

The evaporation of water goes on in nature unceasingly from every moist surface with varying rapidity, according to the dryness and temperature of the air. Leslie, however, proved "that it is always proportioned to the extent of the humid surface;" and also, "that as much water evaporates when the exhaling

surface appears almost dry, as when it glistens with abundant moisture." If the area, then, of a wet or humid surface and the atmometrical degrees be known, the quantity of water evaporated in a given time is easily calculated. Rule—Multiply the number of square inches of the surface by the atmometrical degrees, and the result is the answer in cubic inches of water, which are easily resolved into measure or weight. Example.—Suppose the atmometer has indicated .05 in a day, required the quantity of water evaporated from a pond or marsh of the area of an acre. Answer—1131 gallons, or 5 tons. As a rule, it will be near enough for almost any purpose to reckon the rate of 1 ton per acre for every 10<sup>th</sup> (.01) of the atmometer.

Wind had a great effect in increasing the amount of evaporation. Leslie found from the indications of an atmometer kept in a still place, compared with one exposed, that they became a measure of the rate of the wind. From these things it is evident that atmometrical observations are as interesting and instructive as those of the rain gauge; indeed, the rainfall of any district is uninteresting unless the amount of evaporation be at the same time determined and given.

To set the instrument in operation the cap of the reservoir is removed by the bayonet-joint, the tube filled to (0) zero on its scale; and the thread of cotton wick and also the porous bulb are wetted. Care must be taken not to dirty or grease the porous bulb.

[The foregoing was sent to us by Mr. Shearer, of Yester Gardens, with the accompanying note:—"This instrument, I think, is that which your correspondent, 'T. H. D.' requires. I have had it in use here for two years, and consider it of great importance. It is just as necessary as the thermometer, if not more so. I am well aware that experience will soon make anyone acquainted with the proper temperature required in a house for the full development of any plant without looking what the degree of heat is on the thermometer, and also how far the air is charged with moisture by the feeling it produces on the observer; but we have nothing to guide us what the temperature or the hygrometric state of the atmosphere has been during our absence, except a registering thermometer, and we have now the means with this atmometro-hygrometer, telling us at all times the quantity of moisture which has been evaporated either by night or by day, and, of course, the temperature at the time it is examined, on the same instrument. Every gardener should have one of these instruments standing out in the garden as well, to tell him when he may sow seeds, or plant out tender plants, or when he should water out-door plants. It would soon point out how absurd the system is of watering plants in all kinds of days, or nearly at all hours, as is sometimes practised. What a loss of heat must take place when a plant is watered on a day during which rapid evaporation has been going on, and which this instrument indicates at once. In the summer of 1868 our instrument here, out in the open field, showed us that in one day nearly 40 tons of water had been evaporated from an acre. Had that acre been covered with a wet cloth I cannot say how much would have been evaporated from the soil in the time—perhaps not much less, or even more had the soil been stirred during the time, as is often done both in gardening and farming.

"It was these facts which made Mr. Stevenson construct the instrument referred to. He had previously adapted it to an instrument which he constructed for the Marquis of Tweeddale, my employer, which registers every ten minutes the temperature of the wet and dry bulb, the barometer, and the rain that falls. It is driven by clockwork, stands in the centre of a field, and has been going for two years. The markings are small dots on thin paper, and the thin paper is laid on thick paper with lines showing the temperature, &c., and the hours. It is the first of the kind that has ever been erected. There is a somewhat similar instrument at Kew, but the markings are photographed, and it requires a room and gas, while this does in the open field."

### PROTECTION VERSUS NON-PROTECTION.

In many cases protection encourages all kinds of depredators and but for severe weather we should often be better without it. For instance, I have fine banks and beds of Endive and Lettuce not at all injured as yet by frost, but some under old sashes and mats when it is very cold, are more or less injured, the crisp hearts being eaten out by rats and mice. All such protection seems to whet the curiosity of depredators, and they seem to fancy that that must be better and more valuable to them on which they see extra care bestowed; thus I have not yet noticed a Strawberry plant grown in the open air, or even

in pots exposed to the open air, touched; but many splendid plants have been eaten over, and rendered useless, over which an old sash was placed to screen them a little from the wet. Even as respects Grouse, of which mice are so fond, I have found those in the open air but little injured, but the other night mice cleared some fine pots just coming into bloom, eating the flower-stems and buds, and then climbing up and demolishing the roots. We suspect that in this case both grass and field mice had been present, as our common garden mouse does not often meddle with bulbs and combs after the head has so far grown. After catching and destroying myriads, we still have more than enough. In the frosty nights they would soon have made wrecks of young trees and shrubs, as Laurels, &c., but for washing them to the height of a foot or so with a mixture of soot, lime, and cow dung, thin enough to be quickly applied with an old syringe. Mice are almost as good at this work as a herd of deer, which will feed and grow fat on the bark and the young wood of trees, and even, as in the case of the Laurel, if the bark and the young wood be bitter and disagreeable. In such cases the more nursed and protected the plants are by our kindness, the more likely will they be to suffer from such attacks.

There is, however, a sort of natural protection that often helps to save young plants, if not always, at least generally, from such depredations, also from the severity of frost—namely, the protection of weeds. We can almost imagine a sagacious mouse reasoning in this way—"Ah! there can be of little value, or the gardener would have given them more care and attention." At any rate, among others I will mention two facts. Some time ago I took up and potted some *Collinsia bicolor* to secure early blooms from it, as thus treated it makes a pretty early-flowering plant, and is good for cut flowers. These plants in pots were put under the protection of a light, and almost every plant is cut down to the surface of the pot. Quite near them the same kind of plants, with a fair allowance of weeds among them, without any protection, are untouched. Near these are some healthy patches of young Lettuces, sown late in autumn for early spring planting. A part had been cleared of weeds, and the surface of the ground had been stirred a little with a pointed stick. A part had been left to themselves, the plants thickly showing the points of their leaves through a carpeting of Chickweed, &c. The first well-cared-for lot suffered a little from the frost, but much more from having the hearts nipped out by mice. The second uncared-for lot does not seem to have been touched or injured in any way. Thus there may at times be an advantage in carelessness and slovenliness. But for the Chickweed and the carpeting of snow I might have been induced in the sharpest frost to have stuck a few green twigs among them as a little protection.—R. F.

## OF THE LAWS OF SEX IN PLANTS.

[The following paper was read by Mr. Thomas Meehan, Editor of the (American) "Gardeners' Monthly," before the American Association for the Advancement of Science.]

In my paper on Adnation of Conifers (see vol. xvii., page 438), I believe I established the fact that the stronger and more vigorous the axial or stem growth, the greater was the cohesion of the leaves with the stem. By following the same line of observation I have discovered some facts which seem to me to afford strong probability that similar laws of vigour and vitality govern the production of seeds in plants.

If we examine Norway Spruces when they are in blossom in the spring, we find the male flowers are only borne on the weakest shoots. The female flowers, which ultimately become cones, only appear on the most vigorous branches. As the tree grows these strong shoots become weaker, by the growth of others above them making it shadier, or by the diversion of food to other channels, and thus as these shoots become weaker, we find them losing the power of producing female flowers; and the law in this instance seems very clear that with a weakened vitality comes an increased power to bear male flowers, and that only in the best conditions of vegetative vigour are female flowers produced.

The Arbor Vitæ, the Juniper, the Pine—in fact all the different genera of Conifers that I have been able to examine—exhibit the same phenomena; but the Larch will afford a particularly interesting illustration. When the shoots of the Larch have a vigorous elongating power, the leaves cohere with the stem. Only foliaceous awns give the appearance of leaves. When they lack vigour, lose the power of axial elongation, true leaves,

without awns, appear in verticils, at the base of what might have been a shoot. Every one is familiar with these clusters of true leaves on the Larch. In the matter of sex, an examination of the tree will show the following grades of vigour.—First, a very vigorous growth on toward maturity, or the age necessary to commence the reproductive processes. The reproductive age is less vigorous. Taking a branch about to bear flowers, we find somewhat vigorous side branches, with the usual foliaceous awns. The next year some of the buds along these side branches again break, but the evidently weaker buds make only sparse with leaf verticils. As these processes go on year after year the verticils become, of course, shaded by the new growth, and get weaker in consequence, and thus, in the third year, some of these verticils commence to produce female flowers, or a few of the very weakest may bear male cones. But only in the fourth or fifth year, when the vitality in the spruce is nearly exhausted, do male flowers appear in very great abundance. Indeed, the production of male flowers is the expiring effort of life in these Larch spruces. They bear male flowers and die.

What is true of Conifers seems also to exist in all monocotyledonous plants. In the Amentaceæ the male flowers appear at the first expansion of the leaf buds in spring, as if they were partly formed during the last flickerings of vegetative force the fall before, but a vigorous growth is necessary before the female flower appears. In *Corylus*, *Carpinus*, *Quercus*, *Juglans*, *Alnus*, and I believe, all the common forms of this tribe, we find the female flowers only at or near the apex, or first great wave of spring growth, as if it were the culmination of vigour which produced them, instead of the decline, as in the male. Some of these plants make several waves of growth a year, each successively declining in vigour, and thus the cones do not appear on the apex of the young shoot, but on the apex of the first and strongest wave. This beautiful illustration of the connection of vigour with the sexes can be seen particularly in *Pinus pungens*, *P. inops*, *P. mitis*, *P. rigida*, and perhaps some others.

In the Larch and White Spruce for instance, a second wave will often start after the cone has commenced forming, and the singular appearance is presented of a shoot growing out of the apex of the cone. These varying waves can be seen in *Cyperaceæ*, sometimes placing the male and sometimes the female at the apex of the culm, but always the female in the greatest line of vigour. I do not know of any case where the sexes are separate on the same plant, that extra vigour does not always accompany the production of the female, and an evidently weakened vitality the male parts.

More vigour, however, will not always indicate the degree of vitality. The *Pinus Mughlo* seldom exceeds 10 feet high, and its shoots are not nearly as vigorous as its near relative, *Pinus sylvestris*; and yet it commences its bearing age by a tree and vigorous production of female flowers. But power of endurance is a high test of vitality, and an alpine form should possess this in a high degree. In its relation to sex this form of vital force will also have an interest. The vitality of a tree is always more or less injured by transplanting. Sometimes it is so injured that it never pushes into leaf again. It always pushes out later than if it had not been moved, and in proportion to the injury to the vitality is the lateness of pushing. Clearly, then, earliness of pushing forth leaves is a test of vigorous vitality. Now, some Norway Spruces push forth earlier than others. There is as much as two weeks' difference between them, and it is remarkable that those which push out the earliest—may we not say those which have the highest powers of vitality?—are most productive of female blossoms. Arboriculturists may make good use of this fact. Norway Spruces, which have a drooping habit, are the cone-bearing forms. No way has before been discovered to detect them until they get to a bearing age. Now it will be seen, the earliest to push forth in the spring will be cone-bearing or weeping trees.

It is not so easy to see the influence of vigour or other forms of vitality, as affecting the sexes in hermaphrodite plants as in monocotyledonous ones, yet here there are some remarkable facts of a similar character. In some flowers the forces which govern the male and female portion respectively seem nearly equally balanced. Then we have a perfect hermaphrodite—one with the stamens and pistils perfect, and one communicating its influence to the other—a self-fertilising flower. In many species, however, we notice a tendency to break up this balance. It becomes either a pistillate or a staminate, either by the suppression or greater development of one force or the other. If the force is in the female direction it begins by requiring the

pollen from some other power to fertilise itself; if in the male direction, by increasing the number of stamens, or converting the stamens into petals. The interest for us in this sexual question is to note that just in proportion as the sexes diverge in this manner, in just the same ratio do vigour and strong vitality follow the female in the one case, and weakness the male in the other.

In the male direction, for instance, when the flower becomes double by the conversion of stamens into petals, or the number of either increased, growth is never so strong, and life is more endangered. Double Camellias, Roses, Peaches, and other things have to be grafted on single ones, in order to get more vigorous-growing plants, and every florist knows how much more difficult it is to get roots from a double-flowered cutting than from a single one. Sometimes the male principle, which loves to exhibit itself in the gay colouring of the petals, seems to influence the leaves also; and they also become colored or variegated; and here we see also a weakened vitality follows. Variegated Dox, Variegated Euonymus, or any of similar character, never grow so freely, or endure the winter's cold or the extremes of climate like the green-leaved forms.

On the other hand, when the balance goes over in the female interest, we see it characterised by greater vigour than before. It has long been noted that pistillate varieties of Strawberries are more prolific of fruit; but this rule is not always good, as sometimes the runners, which are parts of the feminine system—a form of viviparous flower shoots, in fact, regulate the amount of fruit. But it is a fact universal, I believe, in its application, that the production of runners and fruit combined is always accompanied by a vigorous vitality.

So in Viola, where we have female influence variously expressed, from the underground stolon or creeping runner, which reproduces without impregnation, to the apetalous flowers, which mature about last seeds on the smallest possible quantity of pollen, up to the perfectly favoured hermaphrodite flowers of spring—all regular grades of one identical female principle, in contrast with those species which maintain throughout a closer connection with the male principle, by maintaining pure hermaphrodite flowers through their whole stages—we find those possessed of the highest type of vitality which are evidently the most under the laws of female influence.

In a brief paper like this it is not my purpose to introduce more of the facts I have observed than will sustain the theory I have advanced. I do not wish to urge it for adoption; my object is to excite investigation on the part of other observers, who will, I think, find everywhere about them that, wherever the reproductive forces are at all in operation, it is the *highest types of vitality only which take on the female form*.

I have confined myself to sex in plants, botany being my special study. Do the same laws prevail in the animal world? I think they do. But this being out of my more favourite province I dare not discuss it, but content myself with the bare suggestion.—THOMAS MEERAN.

### GARDENERS' EXAMINATIONS.

The following are the names of those who took certificates, and the number of marks obtained, December 7th and 8th, at the Royal Horticultural Society's examination of gardeners:—

NAME.	FRUIT AND VEGETABLE CULTURE.		FLOICULTURE.	
	Certificates.	Marks.	Certificates.	Marks.
Charles Earley, Royal Horticultural Society, Chiswick.....	2nd class	700	2nd class	800
George Dowdall, ditto.....	1st class	1140	1st class	999
George Haskins, ditto.....	2nd class	750	3rd class	553
Alfred Jones, ditto.....	2nd class	750	3rd class	530
Alfred Bradley, Eltham.....	2nd class	683	1st class	925
Charles Boswell, Denbies, Dorking.....	2nd class	640	1st class	965
W. Read, Royal Gardens, Kew.....	3rd class	493	1st class	925
Walter Davis, New Hampton.....	1st class	670	1st class	1050
Robert Meares, Royal Gardens, Kew.....	—	230	3rd class	580
George Payne, ditto.....	2nd class	630	2nd class	700
R. J. Lynch, ditto.....	1st class	1100	1st class	1130

\* This candidate was examined for the Associateship.

### NOTES AND GLEANINGS.

The following premiums have been placed at the disposal of the Society of Arts, for the term of seven years, by Dr. Serrimus Piesse, F.C.S.:—1, A premium of £5, for 1 lb. of

otto of Bergamot, of the value of 10s. or more in the London market, being the produce of plants (*Citrus bernaia*) grown in Australia, New Zealand, Natal, any of the British West India Islands, or any other British colony or dependency. 2, A premium of £5, for 1 oz. of otto of Roses, of the value of 20s. or more in the London market, being the produce of any variety of Roses grown together in one plantation in Australia, New Zealand, Natal, any of the British West India Islands, or any other British colony or dependency. 3, A premium of £10, for a canister of endowaved butter or fat, so scented with any kind or sort of flower, either by infusion or endowave, or by means of these processes jointly, of the weight of 3 lbs. or more, and of the value of 6s. per lb. in London; the said butter or fat to be endowaved or infused with flowers grown for the purpose in Australia, New Zealand, Natal, any of the British West India Islands, or any other British colony or dependency.

—The Council of the Royal Horticultural Society have decided that the SCIENTIFIC, THE FRUIT, and the FLORAL COMMITTEES shall in future be elected for one year only, and that at the end of every year the functions of the existing Committees will cease. New Committees will be chosen, and old members will be eligible for re-election. This will effectually remove the feeling of irritation which has frequently been expressed by individual members having to retire to make room for others whom the Council may have thought it desirable to add to the number.

—There seems to be an erroneous impression abroad that the ESSAYS for MR. EGERTON HUBBARD, JUN.'S, PRIZES are each to be printed on a sheet before they are sent in for competition. It is only the successful essays which are afterwards to be printed in that convenient form when the award has been made.

—Two more parts of Mr. Wilson Saunders' "REFUGIUM BOTANICUM" have appeared, of which we shall give a note shortly.

—MAJOR R. TREVOR CLARKE has offered two prizes of £10 and £5 to the exhibitor, whether amateur or nurseryman, who may during the year 1871 obtain the largest number of marks for specimen plants illustrative of the phenomena of hybridisation, exhibited at the meetings of the Royal Horticultural Society. The plants are, if possible, to be accompanied by both parents, and these may be shown as cut specimens in water. The subjects to which the greatest importance will be attached are—1, Crosses hitherto unattempted; 2, Results of great horticultural excellence; 3, Results of great botanical or physiological interest, as, for instance, between supposed genera or distant species; 4, Results well illustrating the effects of hybridisation; 5, Plants raised by the exhibitor; 6, Difficult or supposed impossible unions; 7, For the largest meritorious exhibitor of hybrid plants during the season of 1870. Plants may be shown as cut specimens where removal of the whole plant is impracticable.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

PLANT BOX edgings where requisite, and thoroughly drain any portion of the garden where water remains stagnant. Where water is apt to stand on the surface after heavy rain, try to improve the texture of the soil by a dressing of sand, ashes, lime rubbish, charcoal dust, &c. Plant *Hesperidish*, if not already done; trench it deeply in, placing manure at the bottom of the trench. If the early *Pas* thrust their heads above ground, throw a few handfuls of sawdust in a ridge over them. This will not do, however, when their leaves are expanded. For next year's forcing plant *Sea-kale* and *Rhubarb* immediately in rich trenched ground; throw a hillock of old tan, ashes, or sand, round each crown, to coax them on through the vicissitudes of the weather in February and March. Set band-glasses for *Cauliflowers* in pots, placing one pot in exchange, the soil should be well soaked with liquid manure previously. Sow *Tomatoes* in heat, also *Sweet Basil*, *Sweet Marjoram*, &c.

#### FRUIT GARDEN.

If any transplanting of fruit trees has yet to be done this season, it should be seen to at once, also prepare ground intended to be planted with young trees, and spare no pains nor expense to have this properly done. Make sure of thorough drainage, and where the subsoil is unkind it should be removed, replacing it with some good fresh loam. Pruning and nailing should be persevered in whenever the weather is favourable. Any trees which are to be grafted in the spring may be headed-down, but leave the branches sufficiently long to allow an inch

or two more to be taken off at the time of grafting, when a clean cut should be made. Fresh-planted orchard trees should be securely staked, using a little hay or moss at the tie to preserve the bark. In making fruit-tree borders, particularly for the finer kinds against walls, fresh turfy loam is required, therefore have it in readiness. The only addition should be road scrapings, or something similar, for the Peach and Apricot, where the loam is heavy; use loam itself for Cherries and Plums, and add a small quantity of rotten cow dung for Pear trees, but not if the loam is rich. Dust over on damp mornings with soot and lime Gooseberries and other bush fruit attached by birds. Two or three dressings will be sufficient to preserve the buds of these useful fruits. Where the stock of fruit trees in pots is prepared for forcing the advantages of a deep pit with a bed of leaves will be apparent; the slight bottom heat thus afforded will be found beneficial in setting the roots in action. Cherries and Raspberries are the most impatient of heat, and should be brought forward in a very low temperature, and unless they are required very early they will succeed better when started later. Peach trees should be started with a top heat ranging between 40° and 60°, with a gentle syringing daily, and air according to the state of the weather. Here they may remain till they are nearly in bloom, when a drier atmosphere being necessary, they may be removed to vacant shelves or stages in any house at work, where a moderate heat is kept up.

#### FLOWER GARDEN.

Where any beds or borders require a dressing of fresh soil, this should be provided, in order to have it in readiness to wheel on when the weather is favourable. Fresh soil, as formerly stated, is, in most cases, preferable as a dressing for flower-beds, manuring which is apt to cause too luxuriant a growth for a first-rate display of flowers. On soils that are naturally poor, however, and when neither fresh soil nor decayed leaves can be had, a moderate dressing of well-rotted farmyard manure will be useful; but this should be well mixed with the soil to the full depth of the bed, and not carelessly turned in and left in lumps near the surface, for in this case a gross habit of growth would be promoted early in the season, and as the principal part of the roots would be near the surface in the manure, the plants would soon feel the effects of dry weather, whereas if the manure is well incorporated with the soil to the depth of about 18 inches, no ordinary amount of dry weather will injure the plants after they are once fairly established. Wherever there is a large extent of mixed shrubbery some care is necessary to prevent the stronger-growing bushes from overgrowing the weaker ones, and it will be found better every few years to lift and replant the former, than to prune them severely, for doing so, by inducing the growth of luxuriant wood, prevents profuse blooming. Never allow a margin of bare earth to intervene between the grass and the plants; any interval should be covered with low-growing plants, as Periwinkles and others of similar habit, and the plants over the remaining space should be made to cover as much of the border as possible. The pruning of the more common kinds of Roses may now be done; should, however, a part of the Provence, Moss, and other summer-flowering kinds be required to bloom late, reserve a portion till April for that purpose.

#### GREENHOUSE AND CONSERVATORY.

When it is found necessary to water the beds in the conservatory, choose a fine morning for the operation, and give enough to well moisten the soil, using lukewarm water for the purpose; and be careful to guard against damp for a few days afterwards, by giving air, or, when this cannot be done, use sufficient fire heat to secure a gentle circulation of the atmosphere. Go carefully over the plants every morning, and remove any decaying leaves or flowers as soon as they are perceptible; for no amount of floral display will render a house agreeable unless accompanied by cleanliness and neatness. In the arrangement of plants strive to produce as good an effect as possible, by a judicious contrast of colour and form. The larger kinds of Ferns, and some dwarf Palms, have often a good effect when skillfully introduced among flowering plants. See that Ericas have due attention as to water, and above all give a free circulation of air day and night. Epacris, Correas, Polygalas, Acacias, &c., will now begin to blossom freely; let them all be carefully watered. The Acacias enjoy much moisture. Pelargoniums which are rather early showing bud, and cramped in pots, may soon have a shift. These shifts, for general gardening purposes, are best given to a few at a time successively. Keep up a regular succession in the show house, by bringing forward stock as wanted. Roses, both dwarf and standard, Honey-

suckle, Hybrid Rhododendrons, and Azaleas, with a host of other plants, will enable cultivators, in addition to the usual occupants of the houses, to make a good show. Hyacinths, Narcissuses, Tulips, Lily of the Valley, and other plants of the same class, must be duly forwarded as wanted.

#### STOVE.

A few Achimenes and Gloxinias should be set to work for an early display, choosing those that have been the longest at rest. It would be a good maxim to date the commencement of their resting at all times on their labels, for, where these plants are grown in a long succession, it is important to know such matters. Achimenes set at rest last August will be found more readily excited to a kindly growth than those put to rest in November. Some potsful of Gesnera zebrina first in flower should soon be induced to rest for early work next autumn. This is easily accomplished by withholding water, and keeping the foliage still exposed to the light. The above should, if possible, have a bottom heat of from 70° to 80° when set growing. Some of the Orchids which are commencing growth, if very dry, may have a little water applied at the roots; this must be done cautiously, the best way is to apply the water round the sides of the pot, and by no means to saturate the soil round the collar.

—W. KEANE.

### DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

THE frosty mornings, and even frosty days without sun, gave us an excellent opportunity for wheeling manure, rubbish heaps, &c. It is much better to have a clean barrow-wheel than not. This object is to a great extent secured by having a little long litter scattered thinly near the manure heap, as then the wheel passes off clean, and scarcely leaves a mark where it goes. It is always advisable whilst doing work to avoid making more. We have known before now one day of wheeling requiring the greater part of another day to make walks and paths all right again.

No better weather could be had for digging, trenching, and turning over again roughly the ground that had been ridged up. Talk as we may, there is no pulveriser and sweeter equal to a good sharp frost, and the more loosely we leave the soil the better will the frost penetrate into every cranny and crevice. This is quite a different affair from the frost, if severe enough, penetrating to great depths by free radiation and conduction; but for a limited depth, and as a pulveriser, frost acts most effectively when the soil is rough and loose, so that though free radiation, &c., be somewhat impeded, the keen frosty air finds its way into every opening however small. As a mere pulveriser, then, we consider that in economy no agent is equal to a sharp frost acting on land roughly turned up. As a sweener of what is lumpy, sour, and acid, the most severe frost in December and January acts but a very secondary part to the cold winds but bright suns of March and April.

Lime.—Having the chance, we gave a dressing of lime to a border and bank intended for Potatoes, turning the ridges after throwing the lime upon them, so as to give it a better chance to act. Most stiff soils resting upon clay would be greatly benefited even by a dressing of chalk. That, however, tells merely as a mechanical calcareous agent. Lime which is at all fresh and quick will do this as well ultimately, but at first it will do much to render insoluble organised material soluble and ready to be absorbed, and taken into the system of plants. There is hardly an old kitchen garden that has received a fair allowance of manure, that would not be greatly benefited by a moderate dressing of fresh lime incorporated with the soil. In poor, hungry land, where there is nothing to decompose, the application of quicklime would be of little benefit, unless there were a great scarcity of calcareous matter, and in this case chalk and marl would be as effectual and cheaper than the lime. In old gardens, owing to the abundance of humus from old hotbed dung and rotten tree leaves, a dressing of lime well incorporated with the soil will often be as effective as when it is applied to a boggy soil, rendered almost barren previously by the asphyxiation of decaying vegetable matter. We can recollect several cases in old gardens where Carrots were a most desirable crop, but where it was almost impossible to obtain anything like a good crop; but when such ground was ridged up early in autumn, had a fair application of burnt lime, and was turned several times before the end of March, the crops of Carrots were to be looked at and admired. There are many old gardens where lime and a little fresh soil would be more beneficial than heavy manuring. It is true "Dung

makes the Barley grow," and many things besides, but it is quite possible to make land, and plants too, "dung sick." There are some soils so hungry, that you can scarcely over-dress them, as a heavy manuring this year will scarcely leave a vestige of its presence in the next. For all gardens long dunged every year, and showing when turned up the marks of previous manurings, a lime-dressing will be of great importance in bringing into activity what was comparatively inert and insoluble. Burnt rubbish, burnt clay, sods, &c., do not act in this way so well as lime. There is, however, generally more really nutritive matter in such burnt ashes. In very poor, hungry land, unless there be astringent acid organised material to sweeten and decompose, we should not think of using quicklime to any extent. In our younger days we noticed much done in the way of paring and burning grass lands for the purpose of improving them, and rendering them more fertile. Where at the same time a redundancy of water was got rid of, and the Rushes and rough tussocks were thus disposed of by a smothered burning, and there was a good thickness of soil, the spreading of the ashes, and manuring and cultivation for two or three years before laying the ground down in grass, had a great effect in improving the character of the herbage, and rendering the soil more productive. But we have seen very thin lands, above gravel and clay, so pared and burned to their great detriment and loss, as most of what was valuable in the soil was sent upwards to the clouds, and years of manuring would be required before the ground would obtain what little fertile staple surface it had before burning. In two or three cases some fresh-burnt lime was added on spreading the ashes, and hardly any plan could have been more wasteful, as there was nothing whatever left on which the lime could act beneficially, and more especially as there was enough of sand and calcareous matter in the soil already. It is when there is a superabundance of organised material in an effete or sour astringent state, that quicklime acts most beneficially. In poor, stiff, close soils, scarce of calcareous matter (and no soil will long remain fertile without it), mild lime, or even common chalk, would be more useful as a dressing.

**Mushrooms.**—Put in material for another bed in the Mushroom house. We and others have said so much about Mushrooms lately, that we would have passed the matter but for one circumstance. Our heap, perhaps nearly three-quarters horse droppings, owing to so much wet on the exposed dunghill before we brought it into an open shed, was rather wet to heat itself dryish when thrown together, without wasting more than we should like. A heap of very dry soil lying in the same shed was therefore mixed with it, which helped to dry it; but after all the mixture was just suitable for the last layer of 3 or 4 inches on the surface of a bed, but it was too compact to form a bed entirely, as the heat would be apt to be too strong at first and not continuous enough. More dry, long, littery material was therefore mixed with it in layers, so that when well beaten the bed should be firm, and yet not be too compact all through, as then the yield, though good at first, is not so continuous. We left some of the shortest of this valuable heap unused to be mixed up with other material, shorter, wetter, but fresher and richer still; and if no other mode, such as dry short litter, present itself, we shall resort to an old mode of curs—namely, get a truss or two of wheat straw, cut it into 2 or 3-inch lengths, and then mix it with the dung. Where Mushroom beds are to be made all the winter through, some dry litter which has been stored up would answer equally well. When we had access in summer to long stable dung which we did not particularly want, we have shaken it well, dried the longest, and stacked it, when it became valuable for the above purpose, and for protecting pits and frames. Such help soon makes wet material dry enough, and without the trouble of keeping and turning droppings long in sheds.

When beds are made in the autumn such care is not required; but where a continuous supply of Mushrooms is needed, though we have had beds made in autumn, and left those uncared for that were not wanted for months afterwards, and succeeded tolerably well, we must say we prefer just making the beds bit by bit at a time, spawning as soon as fit, and earthing-up rather soon afterwards. By the above mode, even in the dullest and wettest months in winter, the material may be made sufficiently dry without wasting its nutritive properties. As already stated, we do not like the material too dry, but we like some open unwashed fibre in it to keep up a longentle fermentation. We recollect a large Mushroom house on the Oldaker system—as good as any for shallow beds. The horse droppings, of which there was no stint, were turned and dried, and turned

and dried again and again in summer and autumn, until there was little more nutritive matter left than if the mass had been as much sawdust. This was beaten firmly into shallow beds, shortly afterwards spawned, and then only earthed some six or seven weeks before Mushrooms were wanted. There were Mushrooms, it is true, but never by pecks, not to speak of bushels, and no cook had to complain of being unable to fry them because they were so thick and fleshy. It may be a prejudice of ours, but for anything like continuous gathering we prefer frequent bed-making and earthing-over not long after the bed is spawned, so that when the spawn has taken hold of the dung it shall likewise begin to find its way through the soil. In beds long spawned, instead of 1½ inch or 2 inches of earth, we would be satisfied with a sprinkling of earth and a watering. For general purposes the directions lately given, though short, were ample.—R. F.

#### METEOROLOGICAL OBSERVATIONS In the Suburbs of London for the week ended January 25th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . . 19	30.416	30.372	38	25	41	40	E.	.00
Thurs. . . 20	30.316	30.240	34	29	41	49	E.	.00
Fri. . . . . 21	30.219	30.178	34	26	41	40	N. E.	.00
Sat. . . . . 22	30.284	30.269	38	30	47	39	N.	.00
Sun. . . . . 23	30.285	30.267	41	39	40	39	N. E.	.00
Mon. . . . . 24	30.284	30.287	42	37	40	39	N. E.	.00
Tues. . . . 25	30.321	30.293	39	15	40	38	E.	.00
Mean.	30.303	30.266	38.00	26.43	40.43	39.29		0.00

19.—Overcast; foggy; cold wind; densely overcast, cold wind.

20.—Frosty air; overcast; densely overcast.

21.—Overcast, frosty; overcast; cloudy and cold.

22.—Overcast; densely overcast; cold wind.

23.—Densely overcast; fine, but cloudy; clear.

24.—Overcast; densely overcast; clear and cold.

25.—Clear and fine; very fine; fine, sharp frost.

#### TRADE CATALOGUES RECEIVED.

- Cartor & Co., 237, 238, and 261, High Holborn, London, W.C.—*Garten's Gardeners' and Farmers' Vaid Manual* for 1879.
- James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, S.W.—*Catalogue of Garden and Flower Seeds, &c.*, for 1879.—*List of Gladioli*.
- B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.—*Descriptive Catalogue of Flower, Vegetable, and Agricultural Seeds, &c.*, for 1879.
- Butler & McCulloch, Covent Garden Market, London, W.C.—*Spring Catalogue of Seeds for the Kitchen and Flower Garden, &c.*
- Charles Turner, Royal Nurseries, Slough.—*Catalogue of Seeds for the Kitchen, the Flower Garden, and the Farm.*
- Wheeler & Son, Gloucester.—*Wheeler & Son's "Little Book," or Self-Seed List.*
- H. Cannell, Station Road, Woolwich.—*Illustrated Flora's Guide for 1879: Self-Descriptive List of Fichus, Polypodiums, Verbena, &c.*
- Smith & Simons, 35 and 38, Howard Street, St. Enoch Square, Glasgow.—*Smith & Simons' Cultural Guide and Descriptive Seed Catalogue.*
- W. Cutnish & Son, Highgate, London, N.—*Catalogue of Vegetables, Flower, and Farm Seeds.*
- Dick Radcliffe & Co., 129, High Holborn, W.C.—*Catalogue of Vegetable, Agricultural, and Flower Seeds, &c.*
- Barr & Seaden, 12, King Street, Covent Garden, London.—*Descriptive Spring Catalogue of Choice Seeds for Flower and Kitchen Garden.*
- James Dickson & Sons, 102, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds, &c.*—*Catalogue of Forest Tree, Conifers, Evergreens, Fruit Trees, &c.*
- George John Child, Bradford Nursery, Shipley, and 41, Darley Street, Bradford.—*General Nursery Catalogue.*
- D. Gold McKay, Salford, Salford.—*Catalogue of Vegetable and Flower Seeds, Gladioli, and Spring Flowers.*
- Robert Parker, Exotic Nursery, Tooting, Surrey.—*Catalogue of Agricultural, Flower, and Vegetable Seeds, Miscellaneous Bedding Plants, Fruit Trees, &c.*
- T. Bunyard & Sons, Maidstone and Ashford, Kent.—*Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds.*
- E. & A. Dickson, 106, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds for 1879.*
- Downie, Laird, & Laing, Stanstead Park, Forest Hill, London, S.E., and 17, Frederick Street, Edinburgh.—*Catalogue of Garden, Flower, and Agricultural Seeds, &c.*



of doors, if protected by coverings from frost and wet, by tarpauling or glass.

**GRAPES (F. L. H. S.).**—The Grape *Cellade amano* is an excellent one, well worth growing. The Schiraz is also a fine Grape, but the bunches are loose, and do not invariably set well.

**FERN CASES (Amateur).**—You may see them advertised "four colonies; six for the same price as plant cases."—**ASKING BY A GAS STOVE (T. C.).**—A small, greenhouse is readily heated by one. All the forms and particulars are in No. 341 of this Journal. You can have it post-free if you enclose four postage stamps with your address.

**SHADING FOR ROSES, AND EXHIBITING THEM (F. C.).**—The difficulty in shading standard Roses is to obtain something that will not be blown down. The best shades we have seen for individual blooms are made of light tin, painted green, and in the form of an inverted funnel. The tin shade is fastened on a socket, which moves up and down on a strong tape, and fixed to its position by a screw, the screw being previously driven into the ground at the most convenient point to protect the bloom. The same might be made on a larger scale of tiffany or frigid dome, strained on a light galvanised-ware frame, and made to move in the same way; the chief difficulty would be to prevent its being blown down. For shading pieces of strings, fastened by pegs in the ground, would prove effective. You ask what is the best mode, when exhibiting Roses, to retain their freshness. Much depends, in the first instance, on their being at once put into water and into a cool place when opened, and also, when possible, rather early in the morning when the Rose has been refreshed and invigorated by the night dews. Many persons make a mistake, in our opinion, in giving too much ventilation to their boxes, so that when these are being conveyed to the place of exhibition there is a current of air through them. When the air is most adverse to Roses is when the nights are cold, air, especially cold and dry air, only helps to make them fade. No doubt if Roses were shut up a long time in a hot box without air, it would make them expand too quickly, but wood is a good non-conductor of heat, and if the boxes were kept shut and covered with common house dung, and kept damped, it would preserve the freshness of the Rose much more than if it were exposed in the boxes in a tent with the lid off. It is better, as a rule, to make up your mind beforehand how, and in what order to exhibit the Roses, so that they can be put into the boxes, seeing that the tubes are well filled with water. A movable top to each tube, fitting like a cap, with a piece of India-rubber stretched over it, a hole being made in it to admit the stem of the Rose, will help to preserve the water being split on to the stem. If the air is most adverse to Roses by means of an ether or scent-distributor, is also at times made use of to keep up the freshness of Roses when exhibited; but it is a mistake to splash water over them, as it only helps to damage the blooms, especially if there are any slight blights. If you have a good deal of water, fill the lids of your boxes on as long as you can, and do not take them off till it is time that the tent or place of exhibition be cleared for the judges. We should advise you to purchase the Rev. S. R. Hole's new book: *Roses*, where you will find many hints on cultivation.

**LITER on Roses, &c. (Senior).**—It is somewhat difficult to advise what to do with a list of Roses, without seeing the plants, and it shows how many good Roses there are at present, when out of a list of nearly one hundred varieties we should only advise the removal of the following:—Anna de Diesbach, Achille Gouod, Amadis, Comtesse de Montfort, Charles Rouillard, Gramoteille Supérieure, Le Comte de Paris, Ipswich Green, Laurels, Louis Philippe, Mrs. Ward, Maiden's Blush, Moss (Lancel), Bath White, Baronne de Wassenarr, Pauline Lalande, Triomphe de Caen, Treneure, Tricolor de Flandres. And even of these there are several we should not like to put with, except to make room for better, such as Anna de Diesbach, Achille Gouod, and the Mosses, which are very pretty in the bud, and to cut up with other Roses, but are not really fine Roses in themselves, as the attempt which has been made at the Kensington Rose Show of having separate classes for Moss Roses has fully proved, as there has never been for the last three years a collection fit for staging. We can safely recommend the following, in addition to those which you have:—Abel Grand, Antoine Ducher, Boule de Nègre, Dr. Andry, Duc de Rohan, Duc de Wellington, Duke of Edinburgh, Elie Morel, François Loutin, Jean Goujon, La Brillante, Le Duchesse de France, La France, Lady Suffield, Le Rhone, Madame la Baronne de Rothschild, Madame Hector Jacquin, Marie Bumann, Mille, Marie Rady, M. Noman, Reine du Midi, Thoria, Vicomtesse de Vézins. The only doubtful ones in this list are the North Sea, and the Duke of Edinburgh, as these are the only ones that do not open freely. You need not hesitate to get the three you mention—Marie Bumann, Duke of Edinburgh, and M. Noman. The first is superb in warm weather, and has the merit of opening every bud, even the worst. The only fault is, that the leaves are a little weak in the winter. The second is a fine Rose, and the third is quite as hardy as Devonensis, and the mistake you have committed with it is trying to take too good care of it by housing it in a frame during the winter. If you can obtain a strong plant on the north side of the plant, it is quite a waste of a wall, and it is better to grow it on the north side, and on the other hand, not too much burnt up at the roots, and allow it to grow unchecked at first, giving it plenty of nourishment, and just covering over the roots with litter in the winter, we will guarantee you will not be disappointed. Your last question, "How can I get the roots of the Rose to cut clean off from the very ground (when Roses are grown on the wall, or at the most, one year of growth)?"—The answer is, "Let them cut clean off from the very ground (when Roses are grown on the wall) all weak old shoots, as a general rule, and let the new shoots (when they are weak) cut clean off from the wall, or at the most, one year of growth." This induces the Rose to push up shoots from the base, and each about this pushed from the base is, as a rule, stronger than that which preceded it. Then, in the spring pruning, shorten all weak laterals to two or three eyes, and let the new shoots (when they are weak) cut clean off from the wall, or at the most, one year of growth. It is better to err on the side of over-pruning than under-pruning.

**TWELVE HYBRID PERPETUAL ROSES (W. J.).**—The following we think the best twelve Roses for general purposes, as they are the same in many shades and varieties of colour as possible:—Gloire de Dijon, Souvenir de Malmaison or Mille, Bonaparte, Madame la Baronne de Rothschild, Monsieur Noman, Comtesse Océane de Chabrilant, La Duchesse de Morny, John Hopper, Alfred Coburn, Duke of Edinburgh, Charles de France, and Netting, and Xavier Olibo. To these we should add—Baronne de May

nard, Abel Grand, Marguerite de St. Amaud, Princess Mary of Cambridge, Jules Margottin, Senateur Vaisse, Madame Victor Verdier, Antoine Ducher, Madame de Wassenarr, Comtesse de Montfort, Madame Vidot, Marché Niel, Céline Forester, and Baronne de Noirmont.

**MOSSY LAWS (F. W. G.).**—The best remedy is to well rake the lawn now with an iron rake, and continue to do so until March, so as to remove as much of the moss as possible. Early in March give a good dressing of well-rotted manure, and early in April, during mild moist weather, rake off the rough, and sow over the lawn 4 lbs. *Festuca duriacata*, 4 lbs. *Cynosurus cristatus*, 2 lbs. *Poa nemoralis*, and 8 lbs. *Trifolium mixtum*, rolling well after sowing, and if the lawn can be left without mowing until May all the better. The quantity of seed named is for one acre.

**GRAFTING ORANGE TREES (L. B.).**—Orange trees from seed with stems 1 inch in circumference are large enough for grafting, which may be performed early in April, the plants furnishing the seasons not having commenced growth—at least it must be done before they begin to grow. The stock should be in a house slightly higher in temperature, for ten days or a fortnight before they are grafted. Side-grafting is the best, and a tongue is the most suitable mode of grafting, the head of the stock not being removed, or but partially cut back, until the grafts have taken. The seasons should be of last year's wood. Secure the grafts with matting, 1 inch in circumference, from the junction by a coating of grafting-oil or wax. Place the plants after grafting in a bottom heat of from 65° to 70°, and cover them with a frame, keeping them close and shaded. When the grafts begin to grow cut out of the part of the stock above the graft, but not nearer to the junction than 1 inch, and shade by degrees. In from six weeks to three months the union will be complete.

**SCARTING VINES (J. W.).**—If planted last spring it would be too late to let the Vines start naturally, though you may assist them with gentle fires in March, confining the assistance from fire heat to cold periods and dull sunless weather. As a rule, the less newly planted Vines are excited by fire heat, the better they will be, and they will last longer.

**JAPANESE CHRYSANTHEMS NOT FLOWERING (D. H.).**—We can only account for the plants blooming so indifferently from their being struck late and having been too frequently and too late stopped. Have the cuttings struck in good time, and do not stop more than once, or at most twice, and do not alter the soil. The treatment of the plants then need not differ from that which is given to the flowering class.

**TRANSPLANTING CARNATIONS (Senior).**—Your Double 1-foot high May should be removed, if the roots are near the stem and care be taken to preserve a ball. The best time to move it is during moist weather in March, before it begins to grow; if it may be removed early in September, or in winter, after the first frost, it is the best. The treatment is the same, but which is the latter time. If the roots have extended far from the stem and there is little prospect of securing a ball, take out a trench now at about a yard from the stem and all round it, going down below the roots, and you will then be able to remove the tree in two or three months, probably with a ball. The trench should of course be filled up.

**PINE APPLES LOSING ROOTS (One in Difficulty).**—The plants have lost their roots from these being kept too moist, and the pots are perhaps too large. The bottom heat is too high, but that would not destroy the roots. A temperature of from 65° to 70° is the best for them, and in winter, keep them dry at the root, and in February shade them out, and place them in pots no larger than necessary. Water sparingly for a time until the plants are growing freely, and then encourage them with liberal supplies of water. Maintain a moist atmosphere, and encourage them to grow by a bottom heat of from 65° to 70°. Water can be put on the sides of the hearts of the plants. Surely the root is bad, or the steam excessive. Pouring water on hot fires is bad practice. Sandy peat is not good for Pines. Sandy loam is better. The top 2 inches of a pasture laid up for 24 hours in June, in a hotbed, but this year after potting, and continue it there until you have secured a good growth. Let it have a light airy position, with no more water than enough to keep the plant from flagging. The art of culture is to secure good growth and then well mature it, and then to remove it complete.

**EUCHARIS AMAZONICA NOT FLOWERING (W. L.).**—Your plant could not be expected to flower, as it was but a short time ago in a weakly state. Your treatment so far is right. Keep it dry, and in a night temperature of about 50° or 55°. In March put it necessary, and place it, as you did last year in June, in a hotbed, but this year after potting, and continue it there until you have secured a good growth. Let it have a light airy position, with no more water than enough to keep the plant from flagging. The art of culture is to secure good growth and then well mature it, and then to remove it complete.

**POTTING PARNASSIA PROLIFERA (Phe).**—Pot it at the end of February or beginning of March, not giving a large shift, and as it is so long since it was potted it would be well to loosen the sides of the ball. Shade the plant for a few days until it has recovered, and water it sparingly until the roots are growing freely in the new soil.

**SHADING (Senior).**—For the shade to be effective, the whole of the roof should be covered with the canvas; but if you only wish to shade the plants from the sides of the house it will be sufficient to take the canvas halfway up each side. The shading material ought to be outside, and so arranged that it can be employed in a light weather, and during the winter the rays are in the power, and likely to injure the foliage of the plants. At other times, or in dull weather, the shading should be rolled up or withdrawn.

**ABRICOT TREES AGAINST A WOOD FENCE (J. T. M.).**—Except in warm situations Abricots do not succeed against a wooden or boarded fence. It is better to grow them against a stone wall.

**PRUNING CARBON ACEY TREES (C. H. I.).**—You may prune back the shoots of last year's formation to about half their length, according to their strength. We cannot tell exactly without seeing the trees. Do not cut away any of the older wood unless the trees have been badly trained previously.

**PRUNING SEEDLING PEACH TREES (A. O.).**—You seedling Peach trees ought to fruit in about their third year if properly attended to. Fruit them first on their own roots, and bud them afterwards if found worthy. It is quite a chance as to whether you will have a new variety.

**FERN INFESTED BY BROWN SCALE (Oceus).**—Out of all the ferns and burn them. New ferns will be produced, and if you keep them in a moist atmosphere you will have no more.

**PLANTING ASPARAGUS BEDS (Q. Q.).**—If you must procure plants from a distant part, the beginning of April is a good time to plant Asparagus, or when it is beginning to grow, but if you can obtain plants in May,

taken up and packed carefully, and as carefully planted, the roots being protected from the sun's rays and dry air by immediately covering them with soil, that time is to be preferred.

**Serpentine Cyclamens (C. Q. 1).**—You do not state what the species is, but as the seeds were sown last March, and the plants are now flowering, we conclude that they are varieties of *C. persicum*. You may shift them into larger pots, but not immediately after flowering; defer shifting until the plants have, after a good rest, recommenced growth, then reset them without disturbing the ball, merely removing any soil not occupied with roots. It is not necessary to pot singly; a larger-sized pot will be sufficient, and by having more than one corm in a pot you secure as good a potful of foliage and bloom as you would from only one corm of greater size and age.

**Melon for Moderate Heat (Idem).**—Having but little material for the formation of hotbeds, Beechwood Melon would suit you. It is a free setter and good Melon. As you do not want the plants until the beginning of June, the seeds ought not to be sown until the middle of April, and the plants should be raised and brought forward in a hotbed.

**NAMES OF PLANTS (E. A. H.).**—*Opilismenus imbecilis variegatus*, a plant very generally cultivated in gardens under the name of *Panicum variegatum*, which name, however, must give way to the one quoted above. (*E. C. S.*)—The plant in bloom is *Centradia grandiflora*, a native of Mexico. Your Fern is rather puzzling, but apparently is *Asplenium arifolium*. (*Ignoramus, Foto Island*).—Your "Purslane Tree" is *Atriplex Halimifolia*, Link., a native of the Mediterranean basin, and most probably it will prove hardly with you. (*A Constant Reader*).—*Folystichum angulare*. (*T.*)—Your stone plants are—1, *Sclanthus calycotricha*, often called *Justicia calycotricha*; 2, *Delicatula montana*, also known as *Eranthemum pulchellum*; 3, *Gulfusia isophylla*. Your *Lyceodes* are—1, *Selaginella Brachy*, usually known as *puscens* or *Willdenowii* in gardens; 2, *Selaginella canescens*. (*W. H.*)—*Gonolobum subarcticum* (*Mitchell*).—1, *Oxychilus japonicum*; 2, *Asplenium Veitchianum* (or *A. Delangerii*); 3, *Asplenium* (or *Cheopertis*) *viviparum*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### POULTRY SHOW REFORMS.

THE season, so far as winter poultry shows are concerned, is fast drawing to a close, and now that all those little matters which appear to require improvement are fresh in our memories, allow me to draw the attention of the various committees to them, in the hope that they will give them their best consideration, and, if possible, make the required alterations.

There is one part of the arrangements of a poultry show which but too frequently receives by far too small an amount of consideration and attention—that is, the selection of the pens, and, in my own name, and I know I may venture to add in the names of many of my brother exhibitors, I protest as strongly as possible against the use of those with open wire backs and tops. The reasons for objecting to these pens are so ably set forward by "E. M. B. A." in your Journal of January 13th, that I need not dwell upon them now. I cordially agree in every word he says. This grievance of pens is one which all exhibitors have to complain of, let us see what fault those who exhibit Dorkings, Cochins, and the other large breeds have to find—why it is that in too many cases the pens are not nearly large enough to accommodate them. This remark particularly applies to those shows where cocks and hens are shown together.

Now, what say the Hamburg fanciers? Why they say, and justly too, why should the four different varieties of Hamburgs have to compete in one class? And where this is not the case, Golds and Silvers have to do so. It would be far better to divide the classes, even if it were to do the prizes in each had to be reduced in amount.

Polands are beginning to muster stronger; it is to be hoped they will be encouraged accordingly, and that we shall not see White-crested Blacks, Golds, and Silvers, buddled into one class, with prizes of far less value than any other. French varieties muster sufficiently strong, and their useful qualities entitle them to two classes at every show.

Now I come to the Game classes. I can imagine committees and exhibitors of every other known breed, except Game, starting to their feet and saying, "Exhibitors of Game can have no fault to find, their prizes are high enough, the different varieties are divided enough," &c. Pardon me, my friends, this might be so at Birmingham, and one or two other shows, but they are only the exceptions to the rule. In the first place, then, they complain of Black and Brown Reds having to compete in the same class; of, in many cases, Duckwings, Piles, Blacks, and Whites, having to do the same; but in some cases there is even a greater grievance than these, and that is, asking exhibitors to show two Game hens together. In very many cases this is nothing more nor less than certain death to one or the other of them. Owners of good birds must, therefore, not be blamed if they decline to support shows at the cost of risking the lives of valuable birds.

What shall I say about the Ducks? Aylesburys and Rouens have everything exhibitors could wish, but what about the Black East Indians? How often have they to compete in a class composed of Mandarins, Carolinas, Sheldrakes, and others, which it is a great stretch of imagination to call Ducks at all, in a class for "Ornamental Water Fowl?" I, for one, certainly have nothing to say, but call it by its proper name, and let the East Indians have a class to themselves, or at least one for any other variety of Ducks than Aylesbury or Rouen, and the most that it ought to include, would be Black East Indian, Muscovy, Wild, and Call Ducks; and then let the class for Ornamental Water Fowl take in Mandarins, Carolinas, &c.

One more remark and I have done. In some prize lists a cup or piece of plate is offered for the person taking the greatest number of prizes. Let me suggest that this extra prize should be given to the best pen in the exhibition. It will then cease to be a premium to the person who can borrow the most birds.—*JESTITA.*

### BORROWING AND TAILORING.

A SHORT time since a letter appeared in your Journal on the objectionable practice of borrowing or hiring birds for exhibition. Not one word can be said in its defence. That letter has been passed without notice. Another letter appeared in your paper last week on the still more objectionable practice of trimming. I cannot let this pass without a remark. These two charges should be thoroughly inquired into. Committees and judges have lately been subjects of discussion. Let exhibitors now have their turn. If such matters as the above are passed by with indifference, then gentlemen and honest men will bid farewell to poultry exhibitions.—*EGGNET.*

[We quite agree in thinking that all committees of poultry and bird exhibitions should exclude an exhibitor from showing who has been detected either borrowing, trimming, or making up a bird for exhibition. Even George IV., when Prince of Wales, was excluded by the Jockey Club for endeavouring to cheat.—*EDS.*]

### RAILWAY DELAYS.

THESE are really unaccountable. At various intervals correspondents complain in your columns of birds returning seriously injured, or even dead, and the wonder with me is that birds are not often killed by the extraordinary negligence of the railway officials. I sent two pens to Whitehaven from a station on the main line of the London and North-Western Railway; they were despatched from the show according to the programme of the Committee early on Friday morning, and did not reach home—their home is possibly 250 or 300 miles from Whitehaven—the first pen till Saturday noon after eleven, the second on the same day soon after four. Thus they were a day and a half or more in making a journey of no very great length on railways in direct communication and working with each other; and, as all exhibitors know, nothing but the greatest care will enable birds to bear up against such a strain on their powers of endurance. If the weather happens to be severe, the injury is doubly great. A few weeks since my birds returned from a show soaked with rain. What was the consequence? The cock has lost the sight of one of his eyes, and is therefore, I imagine, useless for exhibition purposes; the pullet is dead. They had won a valuable piece of plate, and had been ennobled in the highest terms by a well-known judge, but "Ichabod" is all I now can say.

What is the remedy? Let committees see that birds are despatched in good time; let them charge the railway officials to make special arrangements previous to the closing of a show, so that the pens may be sent off in good time; and whenever there is occasion, let exhibitors remonstrate, and as far as possible, stop all fees and donors which porters and messengers would otherwise receive.—*E. M. B. A.*

### HOUDANS.

IN 1867 I brought from Normandy thirty-three Houdan eggs. They were nearly three weeks old when placed under sitting hens, and had travelled nearly five hundred miles. In due time I had twenty-three fine chickens, and these have furnished me with an ample stock ever since. As layers of large eggs in large quantities this breed has far exceeded my expectations; and as supplying fine table birds they have not been surpassed in this part of the country. My residence is

amongst the Yorkshire hills, and in this climate the birds enjoy excellent health. I feed them twice a-day, in the morning on soft food made of bran, third quality of flour, small potatoes boiled, and any spare food from the kitchen; in the afternoon I give small Indian corn. This diet is the same for the entire year.

My friends have had many sittings of Houdan eggs from me, and whereas I have generally had nine or ten chicks from the dozen eggs, they have had but two or three. Experience has shown that the great point to be observed in the hatching is just when the chick is ready to commence breaking the shell. The eggs should be previously sprouted with a little warm water, and the most gentle and delicate assistance given to the chick to enable it to effect its emancipation from the shell. I have found that young chickens thrive well on thick oatmeal porridge, after being fed for the first few days of their lives on bread crumbs steeped in milk.

My poultry balance-sheet for the year just ended gives the following figures:—Total cost of food, £5 14s. 6d. Reared forty-nine fine chickens out of fifty-four hatched. Number of eggs from fifteen laying hens, 1684.

I believe that when fowls are lodged in dry, clean, and well-ventilated houses, with a suitable range for exercise, &c., and when they have good food regularly given, they will pay. A very common mistake with careless persons is to over-feed their charge, thus damaging the poultry, and at the same time increasing the expenditure.—L.

### GAME FOWLS.

I FULLY concur in the remarks of "CHARYBDIS," in the Journal of December 30th, thinking that our Game fowls have most certainly degenerated since the present Malay-crossed exhibition type was introduced. I was present at nearly all the Yorkshire and Lancashire exhibitions last spring and summer (1869), from the end of May, at Beverley Exhibition, to the middle of September. I consider the true Brown Red type to be completely spoiled by the introduction of the Malay blood, with very few exceptions; and at the last Birmingham Exhibition, during the first day of which I was present, the Brown Red cocks and cockerels were all, to my mind, very inferior birds, their limbs being too long and too thick and clumsy, from the very strong Malay cross.

Game fowls have lost both pluck and constitution by our exhibitions, and through the old, strong, healthy type being altered by injudicious crossing; the old, good, white-legged Pile, too, has nearly disappeared. Black-breasted Reds and Duckings, though too lengthy in thighs and shanks, still remain tolerably good. I do not, however, hold with clumsy birds and thick necks, having had excellent snake-headed birds of the old type, with close, short, hard, and scant feathers; but the old, strong, curved beak is giving way to a straight beak. The small whip tail is also from the Malay cross. Game fowls must certainly have more stamina, and better and stronger health in the old times, and were less rompy and more beautiful than they are at present; at least, in my opinion as a breeder. If our judges had made the most distinguished of the best old fighting strains of all colours their standard, they would certainly have perpetuated both a handsomer and healthier race of Game fowls, our cup Brown Reds being no better now than a sort of half-bred Malay, without the requisite Game courage. Brown Reds, if real Game, are gipsy in face and comb, with blackish legs and dark eyes, instead of being red-combed and red-faced, with light eyes and Malay widgeon legs, which the majority of them now have.—NEWMARKET.

### A THIRD VISIT TO THE BRISTOL SHOW.

I DARE say some of our readers have seen in their childhood a curious picture-map of England—curious, and yet very correct as to shape. It is the figure of an old woman sitting on the back of a dolphin. The county of Northumberland forms the old lady's conical cap, the coast of Cumberland her forehead, Morecambe Bay her mouth, Carnarvonshire her outstretched hand resting on her knee, and up her hand is crawling a butterfly—viz., the Isle of Anglesey, and Pembrokeshire represents her feet. She is sitting on a dolphin's back; Norfolk and Suffolk the dolphin's head, the mouth of the Thames its mouth, while far-off Cornwall forms the fish's tail. Now just bear in mind the position of Bristol, rather high up the dolphin's back, uniting the west of England with the south and

centre—not very far, comparatively, from the extreme west, or from London, or Birmingham. Just a good central point for the three, Bristol, then, must be, and it is a good position for any place of meeting, hence for a poultry show. It meets the far west, and is yet not too south for the midland counties. If we poor far-away west-of-England people are to have such a luxury as a show it ought to be at Bristol. Three times I have been to it, and always with increased pleasure—for why? It has kept on improving. The first year there were 701 pens, this year over 1300, nearly double in four years.

On my journey, accompanied by sundry fowl and Pigeon friends (I kept picking them up at the stations), the mere sight-seers were very free and happy, the exhibitors were full of wonder as to their luck, and the intending purchasers were longing to carry off their new birds; I, none of these, but with the loyal feelings of a west-of-England man determining to do my best in describing the great west-of-England Show, I kept wondering as to the reason of Bristol's being the head quarters of the Spanish fancy. My musings ran thus (while a brother clerical's son as to the pen of Light Brabmas he wanted to buy):—Shakespeare says, "What's in a name?" implying that a name is of little consequence; but he puts the words in the mouth of a lovesick girl of fifteen, Miss Juliet, not in a wise man of the world's mouth. There is a great deal in a name. Thus, when I read the advertisement of "Stiff's starch," I am more inclined to buy it than if its maker was named "Timmy." "Keen's mustard" I prefer to "Colman's." I expect Keen's will bite my tongue and animate the cold beef, whereas Colman ought at least to sell coke and not mustard; yet he adopts a bull's head for his trade mark. Why could he not have a horseradish? The man's trade belies his name, his name his trade. But why, I ask, is Bristol famous for Spanish fowls? I answer off-hand, because so many Bristolians in olden days sailed across the Spanish main. Surely that answer is as good as any other.

But here I am in that best of exhibition rooms, the Rifle Drill Hall. Well, the gallant riflemen are, in their own place of drill, thoroughly overworked to-day. First to the Secretary's office, where I meet some kind well-known faces, and other kind faces seen to-day for the first time. Then a glance at the cups—gorgeous cups of the usual form, with a group of poultry tastefully engraved on each, and other cups of an unusual but very chaste design, manufactured by Williams, of Bristol. Query, is it well always to give cups? Would it not be better to give other pieces of plate of like value? Next a walk through the poultry, a walk happily hindered here and there by taps on the shoulder from friends behind, and hand-shaking by friends in front. Ladies make morning calls, and so meet; men meet at railway stations, poultry-fanciers at shows, and there they have something better to talk about than the weather. A pert youth, "a boy of the period," says slyly, "that poultry people seem a kind of fraternity like betting men." I answer sternly, "Like better men."

But here I am in front of pen No. 1, *Dorkings* (coloured), and an excellent show these truly useful birds formed. Mr. Lionel Patton took the lion's share of the prizes, but Mr. John Anderson had to boast of carrying off the cup with a most splendid pair of pullets; and Mr. John Martin, my old acquaintance at Linton Park, had the cup for the best cock. Verily the Dark Dorkings are now marvellous birds for weight. Eighty-nine pens were shown. Silver-Greys, the pets of a former generation, were but few, and the White Dorkings were scarcely more numerous, but the first-prize birds were good.

Next *Cochins*, upwards of 150 pens, and yet sometimes we hear that they "are quite gone out." The White *Cochins* were particularly lovely from their extreme cleanness. They must have occupied the best bedroom during the late bad weather, and though they failed to obtain a cup, yet let their owners understand they were among the greatest attractions of the Show. Then came the *Cochins* consisting the *Brabmas*. The Dark were most perfect: the cup pullets of Mrs. Hunt were splendid birds. The second-prize Light *Brabmas*, Mrs. Williamson's, were excellent in size. I own I preferred the second-prize hens, Mr. A. O. Worthington's, to those which took first. The *Brabmas* of both colors numbered 140 pens.

Next the special Bristolians, the *Spanish*, and these surely were scarcely equal as a whole to those of former years. I know how much Spanish-fanciers have to contend against, but, however, Mr. Lane's cup cockerel was excellent, and some others very good. In all there were thirty-three pens. The French fowls came next and were numerous: the *Cheviot* seemed the best. *Hatchings* have crept south, and at Bristol there was a goodly show. The Silver-spangled and Golden-pencilled appear the favorites. The *Ganses* showed no falling-off, may this noble fowl in all its varieties always appear at our shows. I think the *Dorkings* ought to have been more numerous. The first-prize cockerel was a specimen of feathered beauty perfectly shown. Very glad was I to see Pile Game so good, but I should like to have









with in producing one of the required colour; the chances are, if he has a good stock, that the majority of his young birds will be good in rose, hood, and limb, but out of a dozen he may not have one bird of the dark mottled colour now most approved of. Taking this fact into account, I think the Judges ought to pay more attention to the marking of this variety than they have hitherto done.

One of our first Trumpeter fanciers assured me a short time since that he bred especially for white flights, but I presume this may be accounted for in the same way as the man who fancied that all his Geese were Swans.—FLEET DE LIS.

### ANTWERPS.

I AM a Pigeon fancier, and have no garden nor any spare ground in which I could cultivate flowers; yet I read the various articles on rose-growing, which appear from time to time in the Journal with as much interest as the most enthusiastic amateur, and am pretty well up in the names of the leading varieties, together with the aspect and soil best suited to their successful cultivation; and it is not at all unlikely that if I had the necessary appliances I should, in addition to breeding Pigeons, become a grower of roses.

My present object, however, is to offer a few remarks on showing, in connection with my favourite breed of birds, the Antwerps. That shows are beneficial to fancy breeds and Toys there is no doubt whatever, but the Antwerp, I think, occupies much the same position at Pigeon shows as the fox terrier occupies at dog shows, in both cases quality being too frequently sacrificed to fancy points. I notice that the Birmingham Columbarian Society is about to publish engravings of the winning birds at their recent Show at Birmingham, in the Dragon and Antwerp classes, such engravings to be considered as the future standard in the respective breeds. With all respect, and without wishing to give offence to those who breed show birds only, I would caution fanciers against sacrificing stoutness to obtain a new and fancy style in appearance. Let the chief aim of Antwerp fanciers be to breed stout birds; if handsome, so much the better, but at all events retain the distinguishing characteristic of the breed, "the homing faculty," which has hitherto rendered the birds such favourites with those who keep them. Many of the show birds to my knowledge would not travel half a dozen miles; indeed, I have purchased some in the town in which I live, and they have not had sufficient pluck to return a mile, although regularly flown and bred from at the place from whence I purchased them; and to my mind they are not half so handsome as some plucky little fellows I have in my pen, which can and have travelled twenty or thirty miles without previous training. Pluck is to be desired in the Antwerp, and if well-bred a gamer bird does not exist, as in more than one instance I have had birds thrown up some miles away from home that have returned on the third day completely tired out. I do not know anything more pleasing to a real lover of this breed than to toss up one of his birds at a distance from home, and see the determined, resolute manner in which it starts on the return journey—no skulking, no dropping upon the first high building that presents itself; and rival fanciers stir their birds in vain; the bird, soaring high in the air, shakes his tail and seems to say, "I am for home, and if I do not find it, I will at all events have a hard fly for it."

At most of the shows I have lately attended there seems to me to be a leaning on the part of the judges to large, coarse-headed birds, too much warped for the genuine breed, and not the style that old fanciers have been accustomed to consider as perfect.—B. F. C.

### SCOTTISH COLUMBARIAN ASSOCIATION.

At Edinburgh, on the 21st inst., a meeting of the Pigeon fanciers resident in that city was held, for the purpose of arranging for an exhibition at the end of the present year. The meeting was largely attended, and such arrangements entered into as we have no doubt will insure success. The Scottish capital was at one time the principal seat of the Pigeon fancy in Scotland, and from the enthusiastic character of the meeting, and the determination of the members to have their opening show arranged and conducted on the best principles, the exhibition bids fair to recall the glory of former years.

The Scottish Columbarian Association was established at the beginning of last year, and hitherto its exhibitions have been private and the birds exhibited by members only. From the

interest the Edinburgh public take in all branches of natural history, we believe this Association will be well supported, and it has our best wishes for its success.

### THE HIMALAYAN RABBIT.

"DUCKWING" (page 36) posh-poochs what I thought to be pretty clear evidence, that the Himalayan Rabbit exists in its wild state, and in great numbers, both in the Himalayas and in China; but, I believe, if he had questioned any two intelligent witnesses as I did, they would, to say the least, have puzzled him, and I am sure their evidence would have told powerfully with any jury of Rabbit fanciers. I admit, that if the fact were fully established that they thus existed, it would not be proof positive that they were indigenous, but it would be strong presumptive proof, and infinitely easier to believe than that a certain person or persons had at some time or other in England managed to obtain a cross between a Silver-Grey Rabbit and an animal that is no Rabbit at all, and that it "may possibly have been imported from England, and become feral." "Duckwing" not only believes that the Himalayan is a cross between the Chinchilla and a Silver-Grey Rabbit, but states that "it has been proved by experiment here." This last assertion ought to settle the question for ever, but unfortunately there are stupid people in the world, who when they find some monstrous improbabilities staring them in the face, reject the clearest statement unaccompanied with proof. I happen to be one of these, and will now proceed to give the reasons for my incredulity. Let us go to the Chinchilla itself, and see in what respects the Himalayan Rabbit resembles it more than any other prick-eared Rabbit, and especially more than the Silver-Grey, which "Duckwing" appears to take for granted to be a pure and distinct breed, though if space permitted I should give good reasons for disputing even that. It would, however, not affect the present argument between us.

In January, 1866, two Chinchillas might be seen in the Zoological Gardens, Regent's Park, and they or others may still be there for anything I know to the contrary; but, at all events, some of your readers will have seen stuffed specimens in the museums, and I appeal to them as to the accuracy of my description. The Chinchilla is about the size of a squirrel, varying in length from 6 to 9 inches from the point of the nose to the root of the tail. The head is very wide upwards, and resembles that of a male cat, or rather very small kitten, quite as much as it resembles any Rabbit's head. The eyes are black, and larger in proportion than any Rabbit's, and they are placed frontwards, and not so much at the side of the head as a Rabbit's. The ears are proportionately shorter, and very much wider, especially at the tip, than those of any Rabbit, and they are perfectly spread open like a rat's, and have hardly the least semblance of hair upon them. The body and legs may, perhaps, remind one of a Rabbit, but this proves no consanguinity. The toes are very long like those of a rat. The fur, even where it is shortest, is longer than that of any Rabbit, except the Angora, and is often long enough to be spun and woven into cloth. It is ash grey in colour all over the animal, and is not so thickly set as that of the Himalayan. We now come to the tail, which I must lay hold of as one of my best arguments. The tail is as long in proportion as a cat's, and of precisely the same shape. If turned over on the back it would reach to the nape of the neck, and it could put its tail in its mouth with the merest turn of the head. Are my readers able to fix upon the Himalayan Rabbit with its peculiar markings should he fix upon as a cross between this animal, while the Silver-Grey, which at all eyes to be a great similarity in colour, should not be thought of?

Now, it is a well-known fact, that most animals to some extent breed back (to use a well-understood expression), and that if any peculiarity is introduced into a breed it will ever and anon crop out. For instance, if a short-haired doe is put to an Angora, the progeny may be all short-haired, all long-haired like the Angora, or something between the two; or it may be that many generations of them may lapse before there is any indication of the Angora breed being in them, though it will most assuredly develop its existence sooner or later, and often after an incredible lapse of time. I ask, then, how it comes to pass that the longer hair of the Chinchilla does not at times indicate its origin? Has the colour been so entirely eradicated, that it does not by some chance show itself in the Himalayan, and above all, how has that terrible tail become reduced to the orthodox size and shape? Will anybody believe that the Himalayan owes part of its origin to the Chinchilla, but inherits no part of its tail? What Rabbit has a shorter tail than the Himalayan?

Has "Duckwing" ever had occasion to bite several inches off the tails of his Himalayans, and to flatten the remaining 2 inches, to make them look something like Rabbits, and less like nondescript mongrels? It would not be far-fetched to say, that in all probability the nature and habits of the Chinchilla would be to some extent perpetuated in its posterity. For instance, all naturalists tell us that it will only breed two litters in the year; but what Rabbit is more prolific than the Himalayan? The Chinchilla, whenever it is possible, takes its food into its fore paws, and sits up like a squirrel. Do we catch our Himalayans in that pretty position often than our other Rabbits? "Duckwing," however, has positively said that the experiment has been proved in England, and it would only be kind in him to let the dark out of some of our minds, by enlightening us as to the how and the when the curious transformation took place, when the tail, toes, fur, and other characteristics of the Chinchilla became entirely and apparently for ever lost in the Rabbit, and where he found out what very few have ever dreamt of, and still fewer have believed in, when they found themselves wide awake.—B. Hudson, 11, Brunswick Terrace, Hull.

### THE EXPERIENCE OF "A BEGINNER" IN INTRODUCING LIGURIAN QUEENS.

I STATED in my "Experience of a Beginner with the Woodbury Frame Hive" (see vol. xvii., page 334), that I had ordered a Ligurian queen to put at the head of it, and I also ordered one for a swarm that I purchased in June, and which I hived in a Woodbury hive. All through the summer I kept wishing that my bees were Ligurians, but as wishing would not make them so, what was to be done? If I purchased queens, could I introduce them successfully? First, I thought not, for as yet I had never seen a queen bee; then, again, I thought I could, as other people seemed to manage it so easily; however, it ended in my writing to Mr. Woodbury asking him if he had two to dispose of, and he replied, "I have just despatched my last order to the Continent, and have included two for you, have I done right?" Thanks, again, to Mr. Woodbury for making up my mind for me, for between writing him and receiving his answer, I had come to the conclusion that it required more skill than a beginner possessed to add the queens successfully, but as he had ordered them for me I was determined to try what I could do, fail or not; and mentioning the circumstance to my brother, who has also caught the "bee-fever," he said he would help me the following day to try and find the queen in one of the stocks, as this was the first thing we should have to do.

After blowing a few puffs of tobacco-smoke into the hive and carefully removing the crown-board, we lifted each frame into a spare hive close at hand, and though in our way we made a most rigid examination of each frame, we failed in discovering her majesty. "It's a sensible trick," says my brother, "to order two Ligurians, and you cannot tell a queen bee when you see one!" "Well," said I, not relishing the joke, "suppose we replace the frames and again try to find her. I am sure she must be very different to the workers, or else other folks could not discover queens so easily. But there are a lot of bees in the hive, she may be with them; perhaps we have brushed her off the combs in looking for her." So, gently dispersing them with a feather, my brother called out, "Look! look! there she is, she has just gone under that lot of bees there, I'm sure it was her." So, dispersing the cluster which was on the side of the hive, no queen could we find. "Are you sure you saw her, or was it a large worker?" I said. "I'm sure it was no worker I saw, but a queen bee, and I'll swear she is in this box," says my brother, and after searching carefully we ultimately discovered her. Yes, there she was and no mistake, and as different from a worker as possible. We watched her for some time before replacing the frames, and I can assure you felt not a little proud of our success, and quite pleased to have seen a queen bee.

About a month after this, one Thursday morning (October 28th), I received a note from Mr. Woodbury saying that he had just despatched the two Italian queens, so again summoning my brother we commenced operations as before, but this time with more confidence in ourselves. The first queen we found on removing the second frame, the other whilst returning the frames to their places. I discovered her between the bottom of the comb and the frame as snugly hid as possible. We transferred them to two small boxes, each with about a hundred workers and a piece of sealed honeycomb, in case the Ligurians

should meet with any accident. All day the bees were very excited, and also on the Friday; on the Saturday we selected two of the best combs and placed the two Ligurian queens upon them in wire cages (pipe-covers), and in pressing one of the cages into the comb some honey was forced out, when one of the queens plunged her proboscis into it and had a good feed. "Glad to see your majesty help yourself and make yourself at home," thought I, "though I cannot congratulate you on your bashfulness, as you are in the presence of two gentlemen, and in my drawing room too." After seeing that both cages were secure we put them in their respective hives, and the effect was magical, the bees calmed down directly, and in an hour were almost quiet. Sunday the same; so on the Monday I again looked at them, and as there were not many bees about the cages, and they did not look excited, I gently raised the cage of the first; several bees entered and escorted the queen out and along the comb in perfect peace, and as she went along every bee paid her marked attention. Having closed this hive, I did the same with the other; the bees entered the cage as before and seemed very friendly towards the queen, but surrounded her so closely that I did not see her leave it, and I was afraid to disturb them, having read the advice you gave to one correspondent who stirred them up under similar circumstances with a piece of tarred string. As the bees from the other hive were beginning to enter this one, and I had been reading about repulsive attacks being initiated by stranger bees, I thought that this should not prevent a successful introduction, so I screwed on the crown-board, quite confident from their quiet demeanour that they had peacefully accepted her.

I am looking forward to next spring with feelings of pleasure, hoping to see the first Ligurian appear, and as a beginner, thanks to your Journal and the Woodbury hive, I think I have during the first season mastered the primary rudiments of bee-keeping—viz., addition and subtraction. Having, therefore, purchased half-a-dozen more Woodbury hives and nucleus boxes, I intend next spring to study multiplication and division, and in the autumn hope to let you know the results attained by—A BEGINNER.

### TYING COMBS IN FRAMES.

THE bar frames in which I tied the combs were not Woodbury ones, but a contrivance of my own. If your correspondent, "R. H.," of the 13th inst., will take two pieces of thin wood and fasten the bar and frame together by driving a tack through the wood into the frame, and another into the bar at each end, this will hold the bar in its place on the frame. He will then be able to tie the combs firmly in the Woodbury "compound bar-frame," by passing the string over the bar and under the frame, and remove the string, &c., again, when the bees have done their work, without disturbing either bars or frames.—J. B., Monton.

### THE EYES OF BEES—BEE-MANAGEMENT.

AN bees blind? At a lecture about bees given here this was asserted, while from observation and information gained by pretty extensive reading on their habits, &c., I query such being the fact, as do some other persons here.

The lecturer dwelt on the profit to be derived from bee-keeping, and so do most writers on the subject in your Journal, yet certainly it is the few among the multitude who can tell of such success as is told of in books, lectures, &c. I find cottagers are ever ready to sell first swarms for 10s., minus hive. Truly, if from experience they hoped to have 30 or 40 lbs. of honey from one in autumn, to say naught of 60 or 70 lbs., such would not be the case, as they can readily realise 1s. a pound from families around, and 8d. at lowest from the chemists, and that in any quantity.

My experience on the point leads me to think establishing an apiary a pleasurable thing, but not a very good investment. Mine was set on foot with a splendid swarm in spring, two good stocks the following autumn—much delight and much hope. Four years have gone by, and with tolerable success I might now own a flourishing colony of twenty hives, have honey for home consumption, presents to friends, a margin left for repayment of considerable outlay, and more than a trifle over, the neighbourhood being a land of Goshen for the little workers, but New-year's Day found me the crestfallen yet cheerful, hopeful owner of but two hives, a strong swarm,

and a cast from it both doing well; parent hive now defunct. Both are doing well, and up to the 25th of November took in pollen freely, the cast largely, in quantities as if it were May, and on most days the bees come out in great numbers from both hives, and when sunny on night suppose they were about to swarm, they are so active within and without, and within make a loud piping. Neither have the bees been robbed of an ounce of honey; indeed, all the time I have had bees I have not taken 2 lbs., nor had 5 lbs.; while each season one hive at least has been so heavy in early summer that it was with difficulty I could lift it. The swarm at present is heavy, the cast light and not about half-filled with comb. I feed both liberally, anxious to save them, trusting that having gained experience I might yet own a flourishing apiary. Driving ruined several hives, and making a hole in the top of some to place supers, and birds this winter I charge with causing the destruction of the bees.

**JANUARY 17th.**—Bees over-active and vicious, stinging without any provocation, and buzzing and piping in choros louder than in their wont in summer. Day very mild but damp.—E. M., Woolston, Hants.

[Bees are so far from being blind that they have five distinct organs of vision—viz., two large compound eyes consisting of several thousand (about 3500 according to Samuelson), hexagonal lenses, and three simple eyes called either stemmata or ocelli.]

Your bees have evidently not prospered so well as they might have done, and as they probably will do as you gain more experience in their management. Feeding in winter is very injurious, and fully accounts for their being "over-active and vicious." Get "The Gardeners' Almanack" for 1869, published at this office, price 1s., and amend your future proceedings in accordance with the calendar of operations therein contained.]

## OUR LITTER BOX.

\* \* Many answers, reports, &c., are unavoidably postponed until next week.

**ADDRESS (Subscriber, Sandridge, N.)**—Mrs. Hunt, Alderswade, Derby.

**DORING CUCK'S COME—CRIVE CUCKS (N.)**—The double comb of a Dorking cock should be perfectly straight; a crooked one is a grave fault. Our own experience of the Crive variety is in their favour; we nevertheless believe the Houdan to be a harder bird.

**STUMPS OF CUT WING FEATHERS (Peak, D.)**—If you wish to keep the Bantams at home you prevent their flying; and that can only be done by cutting, pulling, or tying their wings. As it is always an effort to produce pinioned feathers, we do not advise pulling out the quills. Leave them till the moult comes, when they will be replaced naturally. It is sometimes better to tie the feathers than to cut them off. If the full flight of one wing be tied the bird cannot fly over a fence; without that Game Bantams fly as well as Partridges.

**CROP OPENED TO EXTRACT A BONE (H. W.)**—We do not see why opening the crop of a fowl should interfere with its health, nor can we imagine any other than gastronomic motives for preferring Indian corn to barley. A grain of barley is easier to swallow than one of Indian corn. We believe the preference is in the imagination of his keepers rather than with the bird. If the owner, and takes no notice of his hens, we should bid him make room for a better man. S.E.—Sometimes, when the crop is opened and sewn up, by a trifling error the body skin and the crop itself are sewn up together; that is not favourable to health and speedy healing.

**CRAMER (S. W. S. S.)**—There is much food. There is an instrument called the crammer that is used for feeding fowls.

**ARRANGEMENT OF POULTRY HOUSES (H. D.)**—Why do you want to keep so many birds, without having the requisite space? You can keep one breed in luxury, two in comfort, and six with much inconvenience to yourself, and little satisfaction to them. We do not think so much of aspect as some people do. Some of our own most successful pens are S.E. We would not prefer E., but we would not put ourselves to great inconvenience or expense to avoid it. Warmth can always be given by food, shelter by the proper placing of perches, and arrangement of doors and ventilators. If you keep many breeds, each confined space must have bricklayers' rubbish, road grit, grass, and fresh earth. The latter daily. Give the penned birds a run every alternate day, and do not pen your chickens; they must have liberty.

**MARKED ANSWERS' EIGHT FEATHERS (A. Sch. r.)**—The words we believe to be in error, in the English, is not unusual to write German in the English characters. Doubtless they denote the name of a society belonging to some place, but the place is marked on a map that we possess. We suppose the figures denote the number of the Pigeon according to the owner's and his name, and the number is a reminder of the name which was missing. The letters and figures were for identification.

**HEN WITHOUT A BEAK (R. C.)**—The trader should not have attempted to deceive you. It is no such breed, and he knows there is not.

**LONDON POULTRY SHOW.**—It is stated in reference to the competition in the Brown Red Game class that the competition in Brown Red Game class, reversing the Birmingham winners, such as not the birds which were placed first and second at the Crystal Palace never met before in the same class. At Birmingham the bird which stood first at

the Crystal Palace was third at that Show in the old class, and the third second at the Crystal Palace was first in the chicken class at Birmingham. They are own brothers, and bred by myself. The first Crystal Palace bird was first last year 1868 at Birmingham.—James Woom.—Mrs. Penson, of Wrackford, Here, took the first prize for a Silver spaniel Hamshire cock, and was highly commended for hen and for Houdans, not Mrs. Pattison of Maldon.—We are sorry to hear that some exhibitors were disappointed at not receiving their birds home earlier; but we will state that it is not attributable to the Committee, as every bird, except three pens claimed but not paid for, was out of their hands by 5.30 P.M. on the 19th, the day after the Show had closed. We suppose the railway companies must have caused the delay.—Mr. G. R. Smith, of London, states that the first prize for a Brown Red Game cock and for Brown Red Game hens were given to him, and not to J. R. Smith.

**LORD TREVELLACK'S SHOW.**—We are informed that the Light Brahmas advertised for sale on December 23rd, took the first prize in the selling class.

**ORIENTAL WATER FOWLS (T. H. T.)**—Mandarins and Carolinas will remain, also tame-bred Noddies. The first two will only lay in small boxes like dog-henches; the last lay only in holes, hence they are called in some places the Burrow Duck, from their making use of Rabbits' burrows. Don birds and Tufted Ducks would also remain, and any of the many sorts of wild Geese, provided there is an island, but no other sorts. Moor hens will only remain where there is plenty of cover for them. All birds that have ever been wild will at times to enjoy privacy. Nothing makes birds so tame as good feeding, and there is nothing wild food like so much as bread. If they are fed regularly on bread they learn to look for it, and it makes them tame. All wild fowl should be pinioned, they are then unable to fly away; but it is also a great security to run a wide lane across the stream if it is small; and a water fence for a few yards on each side of the water, and before the fence be seriously affected. There is no doubt, by a little pinioning, of being able to keep wild fowl. Their food should be barley, but they should have bread at times. You will find some plain and practical instructions in Daily's work on poultry.

**COLOR OF DRAGON PIGEONS—POINTS OF BRAHMA (O. B. M.)**—Black is good color for Dragons, black is better. The points are to dispart, and we are not put in our opinion where doctors differ. Brahmas should be large and heavy, have yellow and heavily feathered legs, and pea combs. Correct plumage, pencilled plumage for the hen, with striped back; for the cock, light saddle and saddle, black and white spotted breast, black thighs, and black tail.

**CANARY CASING (S. E.)**—It is probably the hook, a slight affection of the lungs, caused by hanging in a draught, or exposure to some sudden change of temperature. Mr. Brent found great advantage in putting some tar in the water from which they drank, which has quite cured some cases if taken early, and before the injury became seriously affected. Bread and milk, and plenty of chickweed and groundsel, are also beneficial.

**BEE PLANTS (Irish Subscriber)**—You would hardly go to the extent of sowing in fields places calculated to supply pollen for bees; but we may say that clover is excellent, as long as it is not cut down, and is not cut down, and is not cut down. Of the latter, a good breadth should be in every garden. Of no plant are bees so fond as *Salvia nemorosa*; it will grow almost anywhere, and should be extensively planted on waste lands. The purple seed may be sown in March, but is best sown in August, and sown in rows, and sown in rows, and sown in rows. The plants should be sown from seed sown in spring, and division of the plants in the spring. We cannot recommend any more. Any advertising in our columns would, to doubt, serve you well.

## COTTAGE GARDEN MARKET—JANUARY 26.

There is a slight improvement in business, and good articles are in better request. Pines and Grapes have each made some advance in price. Potatoes are heavily supplied both by coast and rail; the best samples, however, maintain former prices.

### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ..... doz.	0	0	6	0	Melons, ..... quart.	0	0	0	0
Apricots, ..... doz.	0	0	0	0	Nectarines, ..... doz.	0	0	0	0
Cherries, ..... lb.	0	0	0	0	Peaches, ..... lb.	1	0	0	0
Citrus, ..... doz.	0	0	0	0	Pears, ..... lb.	0	0	0	0
Corrants, ..... sieve	0	0	0	0	Pears, kitchen, ..... doz.	3	0	0	0
Black, ..... doz.	0	0	0	0	Pears, dessert, ..... doz.	3	0	0	0
Fig, ..... doz.	0	0	0	0	Pine Apples, ..... lb.	0	0	0	0
Elberts, ..... lb.	0	0	0	0	Plums, ..... sieve	0	0	0	0
Cobs, ..... lb.	0	0	0	0	Quinces, ..... doz.	0	0	0	0
Gooseberries, ..... quart	0	0	0	0	Raspberries, ..... lb.	0	0	0	0
Grapes, Hothouse, ..... lb.	4	0	10	0	Strawberries, ..... lb.	0	0	0	0
Lemons, ..... lb.	4	0	10	0	Walnuts, ..... bushel	10	0	0	0
Sticks, ..... each	2	0	0	0					

### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, ..... doz.	0	0	6	0	Leeks, ..... bunch	1	0	0	0
Asparagus, ..... lb.	1	0	0	0	Lettuce, ..... score	1	0	0	0
Beans, Kidney, ..... doz.	3	0	0	0	Mushrooms, ..... pot	1	0	0	0
Beet, ..... doz.	2	0	0	0	Pennines, ..... lb.	0	0	0	0
Beet, Red, ..... doz.	2	0	0	0	Pumpkins, ..... bushel	2	0	0	0
Broccoli, ..... bundle	1	0	0	0	Quinces, ..... quart	0	0	0	0
Brussels Sprouts, ..... doz.	2	0	0	0	Raspberries, ..... lb.	0	0	0	0
Cabbage, ..... doz.	1	0	0	0	Salsaparilla, ..... doz.	0	0	0	0
Cauliflowers, ..... lb.	1	0	0	0	Seas, ..... quart	0	0	0	0
Celery, ..... doz.	0	0	0	0	Spinach, ..... lb.	0	0	0	0
Cashew, ..... doz.	3	0	0	0	Spinach, ..... bushel	2	0	0	0
Celery, ..... bundle	1	0	0	0	Tomatoes, ..... doz.	0	0	0	0
Cucumbers, ..... each	1	0	0	0	Turnips, ..... bushel	0	0	0	0
..... picking	0	0	0	0	Vegetable Marrows, ..... doz.	0	0	0	0
..... bunch	0	0	0	0					
..... bunch	0	0	0	0					
Garlic, ..... lb.	0	0	0	0					
Horseradish, ..... bundle	2	0	0	0					

## WEEKLY CALENDAR.

Day of Month	Day of Week.	FEBRUARY 8-9, 1870.	Average Temperature near London.			Rain in last 43 years.	Sun. Rises.	Sun. Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.					
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	Days.					
3	Th	Meeting of Royal and Linnean Societies, 8.30 P.M.	45.9	33.7	37.9	29	38	47	59	44	10	9	53	47				
4	F		45.9	32.8	38.9	29	36	7	52	4	9	9	4	14	12	35		
5	S		45.7	33.5	39.6	29	34	7	54	4	9	10	10	5	14	17	36	
6	SUN	5 SUNDAY AFTER EPIPHANY.	45.5	32.6	39.6	21	32	7	56	7	7	10	13	11	6	14	21	37
7	M	Meeting of Entomological Society.	45.9	33.0	39.9	21	30	7	57	4	27	10	morn.	7	14	24	38	
8	Tu	Royal Horticultural Soc., Annual General Meet. of Soc. of Arts, 8 P.M. [Meeting, 3 P.M.]	45.6	32.9	39.8	22	29	7	59	0	48	18	0	7	14	27	39	
9	W		45.3	33.9	39.1	17	27	7	0	5	12	11	24	1	14	28	40	

From observations taken near London during the last forty-three years, the average day temperature of the week is  $45.7^{\circ}$ ; and its night temperature  $32.3^{\circ}$ . The greatest heat was  $62^{\circ}$ , on the 9th, 1831; and the lowest cold  $4^{\circ}$ , on the 9th, 1847. The greatest fall of rain was 0.67 inch.

## COMPOST HEAPS, FRESH TURF, &amp;c.



OFTEN it is very difficult to obtain fresh turf or soil for garden purposes, especially for potting and growing the best crops or plants in hotbeds, &c. The possessors of gardens and parks often look upon surface turf as if it were the finest gold. "I can well enter into their feelings in this respect. Getting the top spit of a rich old pasture, so much alluded to for borders and other purposes by old gardening authors, is all very well, and the gardener who is allowed to dip at pleasure into such a rich store may consider himself very fortunate. In some extensive parks a sort of custom has been established that the gardener may clear a portion of some not-much-seen part of the park every year, leaving the surface rough and open, and sowing afresh with Grass seeds. Wherever he can do this, he ought to feel grateful. I have never had the pleasure of thus resorting to park or common, where the most valuable close fibrous material could easily be obtained, but when planting a fresh piece of cover, or making alterations, I have always been on the outlook for good loamy fibrous turf, and when all else failed I went to the lanes, highways, and hedgerows for fresh material.

In these frosty days I have collected a quantity from the grassy material by the sides of some old hedgerows that had been grubbed-up, and the turf grassy matter that was removed before ploughing. This material was none the worse of having bramble and other roots, and small shrubs along with it. Such clearings would be valuable if merely thrown together in a large heap, but their value is greatly increased if neatly built in long oblong stacks—say 4, 5, or more feet wide, the grass side mostly downwards. Such a stack, say 30 feet in length (or as short as you choose to make it), 4 feet wide, 5 feet high at the sides, and then rising with a hipped roof to a ridge some  $2\frac{1}{2}$  to 3 feet more, will afford a large amount of valuable soil for potting, &c., and will be very sweet, mellow, and full of fibre a twelvemonth or less afterwards. I should have liked this rough turf to be a little drier, but its wetness after the rain would be considerably neutralised by the length of the withered grass, &c., which would tend to keep the whole open, and thus partially admit a circulation of air. In this respect I prefer that the width of the regular-formed heap should not be more than 4 feet, as the object is to have the heap of soil thoroughly sweet and mellow without much loss or decomposition of the fibre. To secure this object when the heaps were wider, I have run drain tiles or small faggots through them in different places, so that the dry, warm, sweet air should pass through without wasting the fibre of the soil. The hipped roof, firmly beaten, will keep the heap dry, as the outside will soon become green, but when I wish to be particular, I have each side of the span-roofed heap thatched with turf, grass side outwards, fastening the turf with pegs.

I make no apology for entering into these details, as the texture and the condition of the soil we use, especially for potting plants, have a very great effect on future success,

and every reader, who for such purposes may use only a few barrowloads of soil, may as well have it in the best possible condition as not. Such a heap will always enable one to have soil suitable as to dryness at any time. It is always easy to damp soil where water is to be had. Such soil is also more easily warmed than if wet, close, and decomposed. The heaps just formed are not so good in material and full of fibre as I could have wished, but they will be tolerably good from six to twelve months hence. I have a quantity in a heap made a twelvemonth ago, placed in stokeholes and under benches, ready for potting, and it is a treat to smell and handle it. Much of it will have to be torn to pieces by the hand, it is so full of fibre. With a little sand and sweet rotten dung anything may be done with such soil for general purposes. Heath peat soil will be required for fine hair-rooted plants, and even for them many pieces of this sweet fibrous turf loam would be useful—a matter of importance in many parts where heath soil is very scarce and expensive. It is difficult to be procured in this quarter, even at the price of £2 for a very small one-horse load, and often a great part of that is rough fibre fit only for drainage.

I have often advised those who want soil for their window plants and little pet greenhouses to obtain rather sandy fresh loam from the sides of roads, and I see no reason to retract the advice. If they can procure as much beforehand from thence or elsewhere as will amount to a load or two, or some barrowloads of turf, pile it up as stated above, and let it stand for a season, they would have a very superior compost. Any sort of loamy turf is better than none, but if I could go where I liked I would pass by all the turf that produced fine, soft, broad-leaved grass, and cut into that where the herbage was individually small and wiry, more resembling needles, or the foliage of a Pine tree, than blades of grass. I can see any day two hundred acres of such turf over the finest loam, and if you take that up from 2 inches thick it is such a mass of fibres that it is next to impossible to tear it to pieces. Material of this kind, carefully stacked for a twelvemonth, becomes one of the securities for fine growth in the case of plants in pots.

With such a heap to fall back upon as the main part of all his composts, the amateur and the regular professional alike may make themselves perfectly easy as to the complex composts that formed so prominent a part in old gardening literature, this plant requiring ten and the other plant some twenty ingredients, and all to be mixed and turned, and turned ever so often before use, until what was really good had nearly been dissipated into the general atmosphere, and what was left was a close unctuous mass that required much more care in watering, &c. With such a heap, sweet and mellow, but with the fibre unexhausted, I want to make no composts until I want to pot, and then I am satisfied with a very simple compost indeed, instead of one that would require a note-book to refer to, lest the best memory should forget a number of the constituent parts. The simpler and the sweeter the compost, the better will the plants thrive. When the pots will admit of it, if the compost is moderately rough all the

better. For instance, for a 5-inch pot I would not object to many pieces of this sweet turf as large as beans. For a 10-inch pot I would not object to pieces as large as walnuts or chestnuts. For all particular purposes I would tear the material with the hand, and not break it up with the spade. A rough open sieve is only used in the case of small plants. When the soil is fine from want of fibre, in addition to the other materials of the compost, as sand and sweet leaf mould, broken charcoal in bits, but from which the dust is excluded, will also be useful for keeping the soil open and regulating drainage.

Where neither the sides of a road, nor the turf there, can be obtained, a very good compost for the general run of pot plants may easily be collected from a ridged-up garden or a ploughed field by taking the flaky soil on the surface during a dry day in March or April, and keeping it for use. I have scraped up this sweet thin layer with my hands, or with a trowel, into a basket or a barrow, and by keeping it in an open, dry, exposed place it answered admirably for the generality of pot plants, such as are grown in windows and small greenhouses. Hardly anything would answer better, even for a Cucumber or a Melon bed. The little additional care bestowed in procuring material will be anything but labour lost. Attention to such details is the first essential to success. For instance, in summer, soil of the description referred to may be used at once with no previous preparation. Now, and for months to come, it should be exposed to the air, and slightly wrined before being used for growing plants. Not long ago I saw stubby Zonal Pelargoniums, with balls full of roots, in 5-inch pots transferred to 6-inch pots, but the plants had been standing in a temperature averaging 70°, and the soil would scarcely have averaged 35°. What a check this would give at once, and still more if cold water was used for watering! How much more would the roots have relied soil at from 50° to 60°, and water at from 60° to 70°, and they would then have been able without check to have pushed into the fresh soil.—R. F.

#### FORCING IN JULY AND AUGUST—CAMELLIAS.

"Pooh! pooh! Nonsense, whoever thought of forcing in July and August?" I expect some one will say. Nature may do the forcing here spoken of, but there are times in which she does that duty in a more perfect manner than at other times, and the result is accordingly. Now, more depends on Nature's forcing in the two months alluded to than is often admitted. It may be true that the operation requires to be continued a month or six weeks longer to prepare our fruit trees for doing well in the following year, but there are plants which attain a mature growth earlier in the year than fruit trees, and, consequently, are benefited or otherwise by the weather we have at the time. Of these Camellias and Azaleas are by no means the least important, and I am not sure but out-door Rhododendrons are in like manner benefited by plenty of sunshine at that particular time, notwithstanding the ideas some entertain that shade is necessary to the well-being of the plants; but if those who advocate the latter view will recall to their memories the season when bloom was most abundant, I imagine it would be one when the preceding summer had been warm and sunny, and in like manner an indifferent bloom would follow a dull sunless season. Many other plants indicate in an unmistakable way the advantages they derive from a period of fine, dry, sunny weather in preference to a damp growing one. My purpose, however, is more especially to call attention to the influence the latter has on the Camellia, telling seriously against the blooming of the plant early in autumn, when the season has not been favourable, and the reverse is the case when a fine hot summer has intervened.

I am the more confirmed in this opinion by the difference in the condition of some Camellias we have growing out of doors. Last year excellent blooms were produced in November, and plenty up to the last week in January, when some severe weather injured them; while this season there is scarcely a bud showing an advanced condition at the time I write (nearly the middle of January), the treatment they have had being the same in both seasons, if merely letting alone can be called treatment at all. But it is the treatment from the sun that tells its tale; the July of 1868 and that of 1869 were widely different, as well as the months that preceded and followed them, and to this cause the absence of Camellia blooms in December is owing; for they have been equally scanty in the plant house as well as out of doors, as many can testify who

have not adopted artificial means to force them. Taking for granted that a large portion of the Camellia blooms produced in this country are from plants occupying fixed positions—that is, planted out against some wall or in a border, they can only be hastened into growth or bloom by subjecting other plants in the same house to forcing treatment, which is not at all times convenient. The character of the months here alluded to affects the condition of the plants in the following November; for if the late summer months have been hot and forcing, the buds will be found in a swelled condition by the end of September, and will begin to expand in October without any further artificial encouragement than the shelter which the glass gives them, and a portion of the bloom will be so produced early in the autumn; but if some heat be not given, there will be a partial cessation of blooming during December and early in January, and a fresh lot of bloom will expand later in the last-named month and afterwards, the dark days, in fact, not being so favourable to this plant's blooming, although with artificial means it can be made to do so.

Taking it, therefore, for granted that the Camellia is one of the plants to which the advantage of a hot summer is of so much consequence for an early bloom, the lesson pointed out to us is, that when seasons of an adverse kind occur, and they frequently do occur, our duty is to imitate as far as we can the heat that has been found so beneficial; and those whose plants are in pots, or are otherwise rendered moveable, will do well to allow them to remain a longer period than usual in the forcing house or pit in which the plants' growth takes place, in order to ripen the flower buds as much as possible before the plants are set out of doors to rest. In this, of course, some judgment is required, otherwise they may be allowed to remain till the bloom begins to open, which I have more than once seen occur in July.

Care also is needed that a second growth does not take place, which sometimes is the case, but I believe it is often occasioned by the energies of the plant having been cramped or checked the season before. The growth in the proper season was stunted, and a partial ripening of it taking place, when a more favourable state of things set in fresh growth was the result. These second growths, it need hardly be remarked, are fatal to a good bloom, but they will now and then occur, and are certainly often in some way due to the season. It need, therefore, afford no surprise when it is affirmed that the fine hot weather in July and August exercises more influence on the flowering of this plant than the most skillful treatment that can be given it, and I have no doubt but it is to the sunny skies of the Continent our neighbours over the water are indebted for the more abundant flower buds with which their plants are studded, rather than to any special mode of treatment.

Let no one, therefore, despise the summer forcing of this plant, or that of some others; for, however unfavourable the dry hot weather of the dog-days may be for the production of grass and certain vegetables, the ripening of certain plants depends upon it in a degree that cannot be compensated by anything we can substitute. To those, therefore, who want this queen of autumn and winter-flowering plants in flower in autumn I would say, Let the plants have all they can bear, consistent with not scorching the foliage, of the summer heat, and with due care and management the foliage of Camellias will endure as much sunshine as that of any plant. Of course sudden exposure after a long period of shade will be hurtful, but I am far from certain that much shade is wanted, unless it be to retard some late-flowering varieties. The health of the Camellia in general is not so much improved by it as many suppose; while to insure its early flowering, its forcing, either by natural or artificial means, at the time alluded to is essential.—J. ROSSON.

#### SELECT HOTHOUSE BASKET PLANTS.

On entering a stove or greenhouse one of the first things I notice are the basket plants; when well grown, to my mind, there are few plants that add so much to the beauty of a house, and so help to give a charm to those growing beneath. Suspended here and there about a stove, they have a very elastic and pleasing appearance. I am well aware there are many plants which can be grown in baskets, but I wish more particularly to notice a few that when grown with care form noble ornaments in a stove, and ought not to be overlooked. In offering these notes I hope I may induce others to give us their experience and ideas.

**NEPENTHES RAFFLESIANA.**—This is one of the most noble basket plants I have ever seen, and when well grown I think it cannot be surpassed. I grow mine in very fibrous peat, sphagnum moss, and charcoal, and when growing well I keep the plant dwarf by taking the crown out. I hope to see it more generally grown.

**NEPENTHES HOOKERI.**—The pitchers of this splendid kind do not attain so large a size as those of *N. Rafflesiana*, but the plant is equally beautiful, and very free flowering. I give both kinds just the same treatment. To grow them successfully they require a brisk damp atmospheric temperature. Their appearance is so striking when well managed that they add very much to the beauty of a stove, and very soon make noble specimens.

**STANHOPEA ALBA CERCLEA.**—This is one of the most lovely basket plants I know. During the past summer I have had one with several lovely spikes of bloom. It is very striking and very peculiar, the bloom coming out of the bottom of the basket. Suspended from a rafters you have something to look at and admire, a beautiful blossom combined with an aromatic perfume, which you will perceive immediately you are near it. I grow it in baskets about 18 inches square. I make the baskets of larch stakes, about 1 inch in diameter. For compost I use coarse fibrous peat, sphagnum moss, and charcoal; in this it will grow most luxuriantly.

**THUNDERBIA HARRISII.**—With me this does exceedingly well. It blooms in February in racemes of lovely blue and white flowers, and has a most pleasing effect. I also grow it up the supports of my stove. Coming into bloom, as it does, when flowers are scarce, it is all the more valuable. For compost use good, rough, fibrous peat, silver sand, and a small quantity of fibrous loam.

**PANICUM VARIEGATUM** as an ornamental-foliaged plant is very lovely. It is of very free growth, soon making a specimen. I am growing it in two or three different ways, but in a basket, drooping, as it is, it is splendid.

**ERANTHEMUM SANGUINOLENTUM. GYNOSTACHYUM PEARCEI, AND G. VERSCHAFFELTI.**—These three genera are pretty, and very soon make splendid specimens. They require to be shaded from the sun. I grow mine in good, rough, fibrous peat, and silver sand, and when I put them in the basket I insert sphagnum between the bars of the basket and a piece of the plant here and there. The plants very soon meet, and when cultivated well present to the eye a lovely picture, forming complete bouquets.—F. P. L.

### DOYENNÉ DU COMICE PEAR.

I AM thankful to anyone who records his experience in fruit growing, however comfortable. I had hardly finished planting fifteen Doyenné du Comice Pear trees, worked on the Pear stock, when in came the Journal for December 23rd, and I read from the pen of "C. J. M.," "If anyone has recently procured this tree on the Pear stock, I recommend him to throw it away at once." I hoped, ere this, to have heard a different account of this excellent Pear on the Pear stock from some one else, but all are silent. I hope that Mr. Rivers and others who have grown it on the Pear stock will be able to show that "C. J. M.'s" experience is the exception and not the rule.—C. C. E.

### THE PRIZE ESSAY ON FLORAL CRITICISM.

#### THE GLADIOLUS SHOW OF AUGUST 17TH.

As Mr. Egerton Hubbard has explained his wishes with regard to the prizes offered for cottage and window gardening, it is too much to ask C. J. Scott in the same way to let us know what he intends by the very vague title "Floral Criticism," and, moreover, who are to be the judges of the essays? (this was suggested by the editors of the *Gardener's Chronicle*). It would be useless to enter on the matter unless something more definite be known on these points, and what is worth doing is worth doing well. I would suggest that the papers be sent in with assumed names, and the true name of the writer in an envelope to be opened after the prize is awarded.

I am glad to see by the amended schedule that amateurs fare better than they did in the former one; but how fare nurserymen? Might I suggest that some of the additional money raised by Messrs. Kelsey and others be used to add second and third prizes to the President's and Mr. Wilson's prizes? If not, there will be, I venture to say, but one collec-

tion staged for each of these prizes, and that is not what is wanted I am sure. If things be managed properly we may have a first-rate Gladiolus show; but they can be better managed, as we too well know.—D. Deat.

### PINE APPLE CULTURE.

I HOPE that other cultivators of the Pine Apple would have followed Mr. Simpson's example (page 3), and given the readers of the Journal the benefit of their experience and opinion upon that to which I called attention (page 497, vol. xvii.)—namely, a more expeditious system of Pine Apple culture; but as they have not done so I have to thank Mr. Simpson for his remarks, and am glad to find that his system so nearly approaches that of which I am an advocate. I consider such a system a great change for the better, and if other experienced growers follow it up I shall not despair of some day seeing still further improvements in this branch of fruit culture.

Although I wrote about large plants, Mr. Simpson has not really misinterpreted me by assuming me to mean old plants also, for with a reasonable attention to the routine of Pine cultivation it is not necessary that a large plant should be an old one, yet under the old system of Pine culture to which I alluded most of the plants were old, because they were not fruited until the third or fourth year; and upon the policy of growing these large plants Mr. Simpson has quite met my views by saying that the latest plants of one year's growth invariably produce the largest fruit; and that they do not proportionally increase in vigour afterwards as also according to my experience.

While Mr. Simpson admits that with some varieties the twelvemonth system may be practised with success, yet with Queens he does not think the time can be safely reduced to less than eighteen months to ensure fruit of an average weight of 4 lbs. I agree with him, but in order to carry out the quick-fruited plan we must be prepared to sacrifice so much in the weight of the fruit. Suppose, then, we place the average a little lower, say 3 lbs., which is not a bad-sized fruit for a Queen, I think that would be large enough to satisfy most small growers, particularly if such fruit could be obtained in less time with its proper flavour.

In my allusion to the amount of rough treatment that a Pine Apple plant will bear I had in view the upsetting of the opinion long entertained by many people, that no system of cultivation would succeed that was not supported by considerable expenditure in glass erections and heating apparatus, and which none but the most wealthy could afford. With these conveniences I cannot find fault, as they are necessary where large collections of Pines are grown, and where the structures form part of an arrangement of glass houses upon a definite plan; but if Pine Apple culture is to make progress so that it can be pursued in gardens of more moderate pretensions, it is quite necessary to study economy in this direction, as well as the quick production of fruit.

When I described my twelvemonth plan I endeavoured to show those who might require to grow Pines on a small scale that they could do so successfully without expensive contrivances; and if I were required to fruit a limited number per year, say thirty plants, I should be satisfied with a small fruiting house in the modern style, and prefer growing my plants to the fruiting state in large, deep garden frames, in a hotbed of leaves, and with linings of stable manure for top heat.—THOMAS RECORD.

### LAXTON'S CROSS-BRED PEAS.

Will you allow me to state, in reply to numerous inquiries I have received, that I know nothing of Hunderfeld or Cook's Favourite Pea which is being catalogued and sold as "Laxton's." The distributors allege that it originates from a cross of my Prolific Longpod with *No Plus Ultra*; if this is the case, more than ordinarily expeditious means have been resorted to to get a stock of it, as Prolific Longpod did not become the property of the vendors until 1865, and it is reasonable to presume that cross-fertilisation would not be attempted until after the variety had been seen in the pod and tried. And if a cross was effected in 1866, it would give a single Pea to start with for growth in 1867! for I have ascertained by very many experiments that a single Pea only in a pod resulting from a cross can be relied upon to produce one fixed variety, and that the produce would require several years' selection to obtain a true stock, and several seasons' growth to get a bulk for sale.

This, however, may be open to the explanation that a cross was attempted and a selection made in the belief that the cross had been effectual; in that case all the Peas in the pod would probably produce one variety, and a true stock of it would follow without the necessity for much selection.—THOMAS LAXTON, Stamford.

## NOTES ON A FEW OF THE BEST TRICOLOR PELARGONIUMS.

I cling to the old name, which will perhaps survive all those which have been proposed; and having during the past season grown and seen a good many of those varieties which have been most prized, I may, by giving my opinion on them, be of some use in guiding the selection of those who may be about to purchase. I shall indicate the purposes for which they are best suited.

*Yellowmont* (Turner).—Raised by Mr. Stevens, of Ealing. A fine-leaved variety, of considerable vigour of constitution. As a pot plant it is likely to be a great favourite, but it is still too dear to be able to judge of its capabilities for bedding purposes.

*Prince of Wales* (Carter & Co).—A grand variety, vigorous in habit, and with most brilliant colouring; the leaves round and smooth. So great has been the demand for this variety that the raisers have not been able to execute one-half of their orders.

*Sir Robert Napier* (Carter & Co).—A very distinct variety, one that can be at once recognised in the most varied collection by its very dark zone. I saw it bedded out at Messrs. Carter's nursery at Sydenham last season; and although I should have supposed that it would have been too dark for that purpose, it was not so. It is very vigorous in constitution.

*Noon-tone* (Rollison).—This has been much-praised by some, but in brilliancy of colouring it is only excelled, I think, by *Luce Grieve*. It is essentially a pot plant.

*Mrs. Dunnet* (Carter & Co).—Another very beautiful variety, bearing in its general character some sort of resemblance to *Sir Robert Napier*, but without the very dark zone of that variety, and consequently brighter.

*Louisa Smith* (F. & A. Smith).—A capital bedding plant, freer in growth and with more brilliancy of colour than *Mrs. Pollock*. I have used it during the last very trying summer, and can testify to its admirable qualities as a bedding plant.

A few words as to culture. Those who have not repotted may do so now. The best plan is to shake off the earth entirely and wash the roots, then to dip them into clean white silver sand. Have ready your compost, which should be clean and sweet; provided this be taken care of I do not think it matters much whether it be rich or not. Mr. Morris, of Deptford, to whom we are indebted for a good deal of the progress effected in this and the *Bicolor* section, told me, and, indeed, showed me, that he always endeavoured to give air to the roots by placing in the pots small pots with the bottom completely broken out, thus making a sort of air-drain from the surface to where the crocks for the drainage resided. Nothing could be finer than the foliage of his plants. As far as I know, we are not likely this season to see anything much superior to the varieties I have named above.—D. Deal.

## VIVIPAROUS BRITISH FERNS.

The very interesting remarks of Mr. A. Clapham on this subject (see last volume, page 516), have induced me to write a few lines, which will partly corroborate his statements.

With regard to my own experience, I may state that thirty varieties of British Ferns in my collection have been prolific in one shape or other; some bearing bulbillets on stipes, others on the rachis, and some on the pinnae. Among these I find there are eight distinct species.

The following list includes all the British Ferns which have been prolific with me:—

*Adiantum rotundatum*, which I received from Mr. Clapham, has formed clusters of bulbs on the pinnae in exactly the same manner as that gentleman's "bulbiferum" has done. It is only fair to state that this has been cultivated under a bell-glass in a store. *Asplenium refractum* bears bulbs on the rachis. *Athyrium Filix-femina* Mapplebeckii bulbs occasionally on the stipes. This variety has very curious abnormal fronds, and has never shown signs of fructification. *Lastrea Filix-mas* Mapplebeckii I found near Grasmere in 1862. Most of the

seedlings from the original bear bulbs on the stipes or caudex. *Osmunda regalis cristata* has bulbs now and then on the rachis. *Polystichum scolopendrium* prolium, *P. angulare prolium*, of this I have ten varieties, including one found by myself—*P. angulare scrocladon*, *P. angulare cristatum*, *P. angulare grandifolium*, *P. angulare lineare prolium*, *P. angulare polydactylum*, *P. angulare truncatum*, *P. angulare varians*, *P. angulare decurrens Padleyi*, and *P. angulare brachistochristatum* Smithii. *Scolopendrium vulgare* Coclignii or Morgani, the best bulbiferous form I have seen; *Lonchopodium prolium*, *ramo-prolium*, and *Wardii*.

On referring to "Our Native Ferns" it will be seen that the following are said to be prolific: I can bear witness as to the two last-mentioned forms being viviparous—*Polystichum angulare aristatum*, *depaneratum*, *imbricatum*, *vestitum*; *Scolopendrium crispum bulbiferum*, *ramo-marginatum prolium*, *viviparum*, and *vivo-polycheide*.

It will thus be seen that eight species have been prolific with me; add to these *Polystichum Lonchitis prolium* and Mr. Clapham's *Asplenium Adiantum-nigrum*, we have ten, exactly the number Mr. Clapham states produced bulbillets in 1854.

I trust we shall hear from other correspondents on this subject, which must be of interest to peridologists.—JOHN E. MAPPLEBECK.

## GARDENS IN EAST KENT—SURRENDEN-DERING.

THE SEAT OF SIR EDWARD DERING, BART.

The stately edifice of Surrenden-Dering, a massive brick structure, stands on an elevated and commanding position, overlooking the undulating surface of the beautiful park, with its finely-disposed groups of noble trees. "And what should make it more highly esteemed by the owner is, that from the time of the grant of it, in the reign of the Conqueror, by the Archbishop (Lanfranc, E. L.), it has never been alienated, but has continued without intermission in the descendants of the same family, to the present owner of it."—(Hasted.)

The east court or carriage front, is a noble square of gravel kept in beautiful order, enclosed by a balustrade of open stone-work, and having iron entrance gates of a chaste and elegant design. From this court, so appropriate to its purpose, and so thoroughly in keeping with the mansion, a broad terrace walk passes along the south front, overlooking the south terrace, with its beautiful geometrical flower garden.

The design of this garden is good, and well adapted to the position, the beds being few, and large in size. It is 120 feet long by 70 feet wide. The well-filled beds were in great beauty, and the effect of the whole was very satisfactory; the masses of colour harmonising well with each other, were quite devoid of the fault so frequently to be met with—viz., too much subdivision of colour in individual beds. The centre of the design, a large oval, contained five hundred plants of *Coleus Verschaffeltii*, surrounded with a broad band of Golden Feather *Pyrethrum*; the *Coleus* plants were even in size, and highly coloured, and this was one of the richest masses of foliage I have ever seen, forming a fitting centre or key bed to the whole design. Surrounding the oval were six curved oblong beds, all planted with *Pelargonium Tretham* Rose, the soft hue of which probably contributed in some measure to the rich effect of the central bed. Without attempting a description of the whole of the beds, I may mention two fine beds of Purple King *Verbena*, with a border of *Pelargonium Bicolor*, each bed containing one thousand plants; some splendid beds of *Pelargonium Christine*, bordered with *Lobelia speciosa*, and a pair of circular beds of a handsome golden-leaved *Pelargonium* raised here, a sport from Tom Thumb, partaking of the fine habit of its parent. The foliage is a bright yellow, with very little green, and its low spreading habit is well adapted for an edging or front row.

From this terrace the view is very fine, extending over a portion of the Weald to the far-off hills of Sussex. By a flight of steps leading from the raised terrace walk a still higher part of the terrace is gained, along which the walk continues by the side of a handsome stone balustrade, on which were vases gay with blossom. The walk also passes along the whole length of the west front overlooking another terrace entirely of turf, from the base of which a lawn of considerable expanse stretches away amongst groups of shrubs, some fine old Cedars of Lebanon, and various other ornamental trees. On the lawn, near the centre of the west terrace, is a fine specimen of *Arancaria imbricata*, upwards of 30 feet high; near this are two other

handsome trees, one *Taxodium distichum*, between 40 and 50 feet high, and the other a *Wellingtonia*. This is a superb specimen of the most elegant proportions, and in the highest possible state of health; it is 21 feet high, 3 feet in circumference at the base of the bole, and 37 feet in circumference at the base of its branches.

Two handsome flights of stone steps lead from the highest part of the terraces to a gravel walk that winds among the trees to the southern boundary of the lawn, where other steps lead down into a deep shady dell, with high banks on each side, crowned with lofty trees. From the walk passing through this sequestered spot other walks branch off into the wild woodlands beyond. From this part of the grounds a gravel walk skirting the western boundary of the lawn passes to the back yards and offices, enclosed by brick walls, all covered with *Roses* and climbers neatly trained.

The kitchen gardens are in the north-west corner of the park, at a considerable distance from the mansion; they are in three divisions, altogether covering about four acres of ground. Two divisions are completely enclosed by walls, and the third has a wall on three sides. The walls are not uniform in height, some being 14 or 15 feet high, while others are not more than 3 feet high. It is calculated that there is 4000 feet of wall, with an average height of 10 feet, to which fruit trees are trained, so that we have here the enormous surface of 40,000 square feet of wall devoted to the production of fruit on all sorts of aspects.

In the first division, the principal objects of interest are the glass houses. The vineries, three in number, are in one range 30 feet long. Regarding the Vines which they contain and their borders from a cultural point of view, the whole of them may be looked upon as a triumph of skill and painstaking on the part of the present gardener, Mr. T. C. Sage. A few particulars of the method pursued in reclaiming these Vines from mediocrity to a very high state of vigour and fruitfulness, may not prove uninteresting.

When Mr. Sage took charge of the gardens in the summer of 1867, he found the whole of the Vines in a sickly condition, with a thicket of weak "spindly" wood, the leaves mildewed, and not much larger than those of Currants, very little fruit, and that small both in bunch and berry; in a word they were in a terrible state of stagnation. In searching for the causes of this debility, his attention was naturally turned to the border, which was found to be very narrow, surrounded by a low retaining wall, by which the roots were confined to the very narrow limits assigned them. This, although undoubtedly an evil, would not probably have proved so very detrimental to the Vines, had the soil and drainage been all right; but on removing the upper portion of the soil, which was tolerably sound and good, a layer of leaf mould 2 or 3 inches thick, extending over the whole of the border, was brought to light, and, as might be expected, it was found to be one mass of fungus, which had spread itself among the roots on all sides. The leaf mould was cleared off, and the roots freed from their insidious enemy. I ought to have stated, that instead of tracing the whole of the roots, one half of the width of the border was chopped up with spades and carted away, Vine roots and all. When this was done, it was discovered that the retaining wall was quite solid, and without any outlet or drain to carry off the superfluous moisture, the only attempt at drainage that could be discovered was a hole 2 feet square in the centre of the border, sunk in the clay on which the border rests, and filled with stones. No concrete had been used, but a simple layer of rough stones was the only provision made to keep the roots from contact with the cold damp clay.

The method pursued in forming the new border was very simple; the retaining wall was pulled down, the bricks and mortar broken up and used as rubble and concrete, and drain pipes were laid down in the usual way throughout the entire border, which was considerably widened. The soil used was of the simplest description—a sound turfy loam, with an admixture of crushed bones; nor were the roots neglected, but with them an equally vigorous style of treatment was at once commenced. Upon examination Mr. Sage considered them to have by far too many channels for the sap to flow through; so many, in fact, that the results were but too evident in the weakly wood and small foliage. The pruning knife was, therefore, at once called into requisition, about one half the spurs were cut clean away close to the rods, and the buds on the remaining spurs were gradually cut out, with the exception of three at the base of each spur, to which buds the whole of the wood was shortened as the foliage decayed; so that instead of the usual close pruning a few inches of young wood were left

on each spur, and when this the final pruning for the season took place, the rods which were heretofore so long as to almost touch the back wall, were all shortened by 3 feet. Keeping in view a most important principle in Vine culture—viz., an equal distribution of vigour throughout the entire length of the rod, attention was next given to the trellis, which was found to be at one uniform distance of 6 inches from the roof. This was so altered that the trellis is now 13 inches from the roof at the front, or lowest part of the house, and 24 inches from the roof at its highest part. When starting into growth the tops of the rods are lowered slightly below the level of the lowest spur; and here, as bearing on this part of the subject, I would observe that the hot-water pipes, of which there are four in the earliest house, three in the next, and two in the latest house, run close to the front of the range, so that the lowest spurs, benefiting by their proximity, start into growth so strongly and well, that they acquire and retain throughout the season a vigour of growth quite equal to the top shoots.

The results of this vigorous treatment have been very satisfactory; the crop of Grapes produced last year was all that could be wished, and this year the whole of the fruit has been of the highest excellence. At the time these notes were taken (September 9th) the Vines in the first house, which were forced early, were already pruned; in the second house, the splendid foliage almost large enough to be compared to Riburbar leaves, was still green, and the last Grapes had been just cut; and in the last house, the fine even crop was as yet untouched. It consisted principally of Black Hamburgh, with Lady Down's, and Barbarossa. Lady Down's was fine, and well finished both in bunch and berry, but surpassed by the Black Hamburghs, which were in splendid condition, very highly coloured, and if any fault could be found, it was that some of the berries were too large to be eaten with comfort. One berry was of such an extraordinary size that I asked to be allowed to measure it, and it was actually 4½ inches in circumference. But it was the Barbarossa that was the most striking feature in the house; the bunches on this Vine, thirteen in number, were really magnificent, and in no Vine was the equal distribution of vigour more apparent, for both the wood and fruit at the base of the rod were, of the two, rather more vigorous than at the top, the bunches were all very large, and the bunch on the lowest spur measured 12 inches in length, and 11 inches across the shoulders.

The pruning of these Vines is not done all at once, but is a gradual process, commencing with the first symptom of decay in the foliage, and extending over a period of three weeks; the lowest spurs are pruned first, and the highest last, nor is the whole of the new wood cut away, but, as I have stated above, three eyes are left to each spur. This method of pruning is no mere theory, but is practically found to very much increase the vigour and fruitfulness of the Vines, and in the case of the Barbarossa it is considered to be one of the most important features in its culture.

Close attention is given to every minor detail, and the best proof of the excellence of this treatment is seen in the development of such wood, foliage, and fruit, as to leave nothing to wish for. One more remark in reference to the border, here is no complicated mixture of soils, but merely a sound, wholesome loam, and a few crushed bones. This soil, watering when necessary, and a top-dressing of manure to be washed down by autumnal showers, constitute the most important features in the treatment of the roots, and if by such a mode of culture the Vines can be induced to fill the soil with plenty of firm fibrous roots, nothing more can be required.—EDWARD LUCKHURST, Egerton House Gardens, Kent.

(To be continued.)

#### RENDLE'S PLANT PROTECTORS.

I HAVE received a letter from Mr. Rendle in which he threatens me with Chancery proceedings. I think if your readers refer to my last on this subject (see page 25), they will find that I never said I was going to put up a ground viney on his system, but that I was going to try the expense of making small frames in 10-feet lengths, 7 inches high at the back, and 34 inches high in front, of 1-inch deal, with moveable glass fastened with wire pins in front. As I have never seen Mr. Rendle's plan except on paper, and as, of course, he can never yet have seen mine, he somewhat, I should say, jumps to conclusions when he says that I am going to erect ground vineies on his system. He claims to have patented the whole system. What! of protecting plants with glass? I

was under an impression that had been done for some time. Well, then, is it the system of ground vineries? I think Mr. Rivers will have something to say on that point. Is it the system of running glass in earthenware grooves? This, as I pointed out, is also patented by Mr. Looker! The only possible claim for a patent Mr. Rendle has is for adapting moveable terra cotta or earthenware tiles, with glass sliding in grooves, as a protection for plants.

He tried to intimidate Mr. Luckhurst on the ground of his having made and exhibited models in wood; he might just as well say that people would infringe his patent if they drew out plans on paper. There are not the days of monopolies, and what he says about the Court of Chancery is either from sheer ignorance or for the sake of bluster and intimidation. I will give him the benefit of the doubt. The granting of patents was never intended to check private enterprise or skill, but merely as a protection to prevent other persons thriving on the results of another man's brain, and if I made tiles for sale similar to his, then Mr. Rendle would have a just cause for complaint. As it is, he has none, as I, as well as others, have a perfect right to differ from him, and prefer wood and glass to tiles, as being cheaper and more easily moved, and because wood is a better non-conductor of heat than terra-cotta.

Mr. Rendle is perfectly mistaken if he thinks his letter will in any way intimidate me, or prevent me from making the small frames I intended; nor do I mean to answer any more letters on the subject.—C. P. PEACH.

[We decline inserting any more communications on the subject.—Eps.]

### BOILERS AND BOILING.

As Mr. Peach does not mean to write more on this subject, I shall not make any unnecessary remarks on his paper; I must, however, just touch on those parts of it that refer to my former article. I am sorry he thinks I have advocated my views too strongly, and if I have said anything offensive to him I apologise, but I do not recollect saying anything calculated to offend. I should be exceedingly grieved if I were to attempt to place anyone in an invidious position, more especially if that person were a clergyman, for I am old-fashioned enough to have a great respect for ministers of religion.

I never saw a fire or heat allowed to act on water through a medium of air or steam; the boiler containing water in such case would become unduly heated, and either explode at once, or gradually burn out.

I did not say the motion of water in a small pipe is as free from friction as in a large one, but that, as the resistance increases equally with the power, the actual working effect is the same in pipes of all sizes.

I do not think small pipes are so suitable to a horticultural building as large ones, and I cannot think it requires more fuel to give off a certain amount of heat through a small pipe than it does through a large one, simply because I can see no reason for it, but the contrary.

I did not speak of cold indecency, but said it was better to provide sufficient pipes to warm cold air entering in unusual quantities; for, of course, as the hot air escapes cold air from the atmosphere will supply its place.

I see I guessed very nearly right when I estimated that Mr. Peach's boiler contained about 8 feet of effective heating surface. It contains 6 feet of surface in contact with the fire, and 41 feet of this surface (not counting the top); this divided by 3 gives rather more than 14 feet to be added to the 6 feet of internal surface, so the boiler contains 71 feet of surface, without counting the surface presented by the ends. I suppose this surface will amount to over 3 feet, thus making a total of 104 feet. If the boiler were perfectly set it might heat 600 feet of pipe; this would be the maximum effect; consequently I do not see any proof of this boiler boiling any water by means of top heat.

In conclusion, I maintain that the circulation of water is brought about by convection, and that it is also entirely kept up by convection.—JOHN WOOLFELD, *Smethwick*.

### GLADIOLUSES FOR POT CULTURE.

In accordance with the wishes of some of your correspondents, I will enumerate a few cheap varieties of Gladiolus suitable for pot culture—Apollon, Bernard Palissy, Brencloeyensis, Ceres, Chateaubriand, Comtesse de Bresson, Daphne, Dr.

Andry, Endymion, Fanny Rouget, Goliath, Lord Granville, Haquin, M. Vinchon, Napoleon, Ophir, Penelope, Prince Imperial, Rebecca, and Vesta.

For the benefit of anyone who may be possessed of a few bulbs that may be spared for potting purposes, I may mention that most of the race give the greatest satisfaction under glass.—A. KENN.

### RESULTS FROM CROSS-FERTILISING PEAS.

The following communication from Mr. Laxton was read at the last meeting of the Royal Horticultural Society's Scientific Committee.

Ten seeds exhibited were derived from a single experiment. Amongst these seeds will be observed some of several remarkable colours, including black, violet, purple-streaked and spotted, maple, grey, greenish, white, and almost every intermediate tint, the varied colours being apparently produced on the outer coat or envelope of the cotyledons only. The Peas were selected for their colours, &c., from the third year's sowing, in 1869, of the produce of a crop in 1866 of the early round white-seeded and white-flowered garden variety Ringleader, which is about 21 feet in height, fertilised by the pollen of the common purple-flowered Maple Pea, which is taller than Ringleader, and has slightly indented seeds. I effected impregnation by removing the anthers of the seed-bearer, and applying the pollen at an early stage. This cross produced a pod containing five round white Peas, exactly like the ordinary Ringleader seeds. In 1867 I sowed these seeds, and all five produced tall purple-flowered, purplish-stemmed plants, and the seeds, with few exceptions, had all maple or brownish-streaked envelopes of various shades, the remainder had entirely violet or deep purple-coloured envelopes; in shape the Peas were partly indented, but a few were round. Some of the plants ripened off earlier than the Maple, which, in comparison with Ringleader, is a late variety; and although the pods were in many instances partially abortive, the produce was very large. In 1868 I sowed the Peas of the preceding year's growth, and selected various plants for earliness, productiveness, &c. Some of the plants had light-coloured stems and leaves; these all showed white flowers, and produced round white seeds; others had purple flowers, showed the purple on the stems and at the axils of the stipules, and produced seeds with maple, grey, purple-streaked, or mottled, and a few only, again, with violet-coloured envelopes. Some of the seeds were round, and some partially indented. The pods on each plant, in the majority of instances, contained Peas of like character, but in a few cases the Peas in the same pod varied slightly, and in some instances a pod or two on the same plant contained seeds all distinct from the remainder. The white-flowered plants were generally dwarfish, of about the height of Ringleader, but the coloured-flowered sorts varied altogether as to height, period of ripening, colour and shape of seed: those seeds with violet-coloured envelopes were generally round, and some of them were indented, and produced nearly all maple or parti-coloured seeds, and only here and there one with a violet-coloured envelope; that colour appeared again only incidentally, and in a like degree, in the produce of the maple-coloured seeds. In 1869 the seeds of various selections of the previous year were again sown separately, and the white-seeded Peas again produced only plants with white flowers and round white seeds; some of the coloured seeds, which I had expected would produce purple-flowered plants, produced plants with white flowers and round white seeds only; the majority, however, brought plants with purple flowers and with seeds principally marked with purple or grey, the maple or brown-streaked being in the minority. On some of the purple-flowered plants were again a few pods with Peas differing entirely from the remainder on the same plant; in some pods the seeds were all white, in others all black, and in a few again all violet, but those plants which bore maple-coloured seeds seemed the most constant and fixed in character of the purple-flowered seedlings, and the purplish and grey Peas, of an intermediate character, appeared to vary most. The violet-coloured seeds again produced almost invariably purplish, grey, or maple Peas, the clear violet colour only now and then appearing, either wholly in one pod or in a single Pea or two in a pod. All the seeds of the purple-flowered plants were again either round or only partially indented, and the plants varied as to height and earliness. In no case, however, does there seem to have been an intermediate coloured flower, for although in some flowers I thought I found the colour of a lighter shade, and applied equally to the parent maple, or other circumstances, and applied equally to the parent maple. I have never noticed a single tinted white flower, nor an indented white seed in either of the three years' produce. The whole produce of the third sowing consisted of seeds of the colours, and in the approximate quantities, in the order as follows—viz., 1st, white, about half; 2nd, purplish, grey, and violet (intermediate colours) about three-eighths; and 3rd, maple about one-eighth.

From the above I gather that the white-flowered white-seeded Peas (if I may use the term) an original variety, well fixed and distinct entirely from the maple, that the two do not thoroughly intermingle, for whenever the white flower crops out, the plant and its parts all appear to follow exactly the characters of the white Pea; and that the maple is a cross-bred variety which has become somewhat permanent, and would seem to include amongst its ancestors one or more bearing seeds either altogether or partly violet or purple-coloured; for although

this colour does not appear on the seed of the maple, it is very potent in the variety, and appears in many parts of the plant and its offspring from cross-fertilised flowers, sometimes on the external surface of, or at the sutures of, the pods of the latter, at others on the seeds and stems, and very frequently on the seeds and whenever it shows itself on any part of the plant, the flowers are invariably purple. I have also deduced from my experiments, in accordance with the conclusions of the late Mr. Knight and others, that the colours of the envelopes of the seeds of Peas immediately resulting from a cross, are never changed. I find, however, that the colour, and probably the substance of the cotyledons, are sometimes, but not always, changed by the cross-fertilisation of two different varieties; and I do not agree with Mr. Knight, that the form and size of the seeds produced are unaltered, for I have on more than one occasion observed that the cotyledons in the seeds directly resulting from a cross of a blue wrinkled Pea, fertilised by the pollen of a white round variety, have been of a greenish white colour, and the seeds nearly round, and larger or smaller according as there may have been a difference in the size of the seeds of the two varieties. I have also noticed that a cross between a round white and a blue wrinkled Pea will in the third and fourth generations (second and third year's produce) at times bring forth blue round, blue wrinkled, white round, and white wrinkled Peas in the same pod; that the white round seeds, when again sown, will produce only white round seeds; that the white wrinkled seeds will, up to the fourth or fifth generation, produce both blue and white wrinkled and round Peas; that the blue round Peas will produce blue wrinkled and round Peas; but that the blue wrinkled Peas will bear only blue wrinkled seeds. This would seem to indicate that the white round and the blue wrinkled Peas are distinct varieties, derived from ancestors respectively possessing one only of those marked qualities, and, in my opinion, the white round Peas trace their origin to a dwarfish Pea, having white flowers and round white seeds, and the blue wrinkled varieties to a tall variety, having also white flowers but blue wrinkled seeds. It is also noticeable, that from a single cross between two different Peas many hundreds of varieties, not only like one or both parents and intermediate, but apparently differing from either, may be produced in the course of three or four years—the shortest time which I have ascertained it takes to attain the climax of variation in the produce of cross-fertilised Peas, and until which time it would seem useless to expect a fixed seedling variety to be produced, although a reversion to the characters of either parent, or of any one of the ancestors, may take place at an earlier period. But, in conclusion, I may perhaps, in furtherance of the objects of this paper, be permitted to inquire whether any light can, from these observations or other means, be thrown upon the origin of the cultivated kinds of Peas, especially the “maple” variety, and also as to the sources whence the violet and other colours which appear at intervals on the seeds and in the offspring of cross-fertilised purple-flowered Peas are derived?

## HEADING-BACK NEWLY-PLANTED FRUIT TREES.

Mr “scribbling sfs” have lately been of a private nature, a moiety having been devoted to Mr. Pearson in transacting business for an amateur, who has just been having from the Chilwell Nurseries a few dozens of fine, well-fet dwarf fruit trees. Had they better be pruned at once? or had they better wait until the sap move in the spring?

There seems to be nothing definitely settled amongst practical men as to when is the best time to prune back newly-planted fruit trees. In regard to these particular trees I am the sole arbiter, and have given my verdict, and no one has any right to complain; but when I open the general question, and make my opinion public, the public have a right to differ in this as in any other matter.

I am aware that in my views on this question I am in opposition to a thoroughly practical man, and, undoubtedly, one of the most able contributors to the columns of this Journal, but while I differ from him, I highly respect him, as I do anyone who differs from me kindly. Yet, were my views on this question in consonance with those of Mr. Luckhurst, I am still in a dilemma by being in antagonism to those of the worthy “ARCHIMBAUD.” I have, however, settled that the pruning of these particular trees be deferred until the spring; at the same time telling the owner that if another doctor should tell him that he has killed them by not pruning at once, to reply, “That as the trees have done nothing amiss, he prefers to see them die a natural death rather than be subjected to death by decapitation.” My conclusions on this point are not arrived at so much by a study of the laws of vegetable physiology as by actual observation and careful practices.

One of the first lessons I ever remember to have received was on this very subject. I am not sure that I was well out of petticoats when, in childish zeal, I vowed I would be nothing but a gardener. That was a determined and oft-repeated vow, for I really meant it, and for years before I could work it was

in my humble home recognised, that, if possible, the vow should be carried out. On this subject, then, a wood was my school, and my father was my teacher.

On one occasion, when watching him at his work, he perhaps to gratify my young wishes, saluted me with, “Now, Jack, my lad, when a gets to be a gardener, never cut the top and the bottom of a tree at once when it plants it; mind that.” The “mind that” fixed the lesson. He was a plain, untutored “son of toil,” but I believed him then, and I believe him yet. In due time I got into a garden, and the first Peach trees I ever saw planted were closely pruned at the time of planting. They did not break and do well, much to the gardener's discomfort.

On the next occasion of planting I ventured to repeat my father's maxim. To my joy it was taken kindly; and here I learned another lesson, that the gardener was not above taking a hint from one beneath him. “Shall I tell my father to come to-night, sir?” was my first inquiry. “No, lad; I want the favour, and I'll fetch it.” My father had, I may say, miles of fences to look after, and it was his labour and study for years to make quick-thorn hedges grow where they had never grown before, to replace others far less effectual. All ways and means I believe he tried, for the soil was not congenial, to succeed in his object. The plan which he proved to be the best was early planting and a careful late pruning. He waited for the springing of the buds, then by a judicious use of the knife he managed to secure a cleaner, freer growth during the first season than he could by any other means. This he regarded as his secret of success. The effects were certainly very striking, and were incontrovertibly in favour of the plan over lengths otherwise treated, which he left time after time for experiment to establish or upset his maxim. Here, then, are the grounds of my belief.

The gardener, after seeing, believing, and the next Peaches were not pruned at planting time, and they pushed much more freely. I have since, year after year, tried both plans side by side with, I may say, all sorts of trees, and in some instances I quite willingly admit the difference in effect was slight, but in others the effects and advantages of late pruning were so manifest, as to justify me to my own entire satisfaction in laying down this dictum—Plant early in autumn, and prune early in spring.

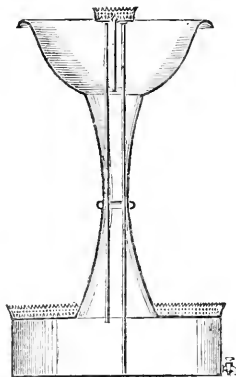
In instances of success of pruning at the time of planting, I suspect the trees were of the kind described by Mr. Luckhurst, quoting Emerson, “A good tree that agrees with the soil will grow in spite of blight, or bug, or pruning, or neglect, by night or day, in all weathers and all treatments.” Well such trees need no rule. I am firm in my belief that any tree which succeeds well after being pruned at the time of planting would have succeeded equally well if its pruning had been deferred until spring; and I am equally firm in believing that some trees which have not succeeded well under pruning at the time of planting, would have done better if they had been left unpruned until a gentle move of the sap in the spring. It matters not just now whether the sap causes the buds to swell, or the buds cause the sap to rise. I am looking at results in a practical light; the causes may, perhaps, be found in the study of vegetable physiology, but I am not in a philosophical humour just now, and if I were I might be easily put out, for I have not a command of books to confirm or refute my notions, and I am not bold enough to submit anything unless I can at the same time bring forward some sort of proof if wanted.—J. W.

## SELF-ACTING FOUNTAIN.

THE annexed sketch represents one, 30 inches high, which is not very expensive or difficult to make by anyone who can use a “copper bit.” The top reservoir is a 14-inch galvanised iron basin, with a flat zinc cover soldered on; the centre, for about 4 inches diameter, slightly sunk; the base is a zinc reservoir of larger capacity than the upper one; the shaft or pillar is also of zinc, with a bead round the centre by way of ornament, the whole soldered together; the jet is the nose of a large-sized carpenter's oil-can, with a piece of compo gas pipe long enough to reach nearly to the bottom of the bowl, soldered to it; the tube shown, with a slightly funnel top, is soldered into the cover, and passes through to within three-eighths of an inch of the bottom of the lower reservoir; the only remaining pipe is fixed with one end opening into the top of the lower, and the other under the cover of the upper reservoir. A piece of ornamented perforated zinc relieves the plainness of the top

and protects the tube, and at the base forms a guard for soil in which Ferns, &c., grow.

To work it:—Unscrew the jet and fill the top reservoir, re-fix the jet and place your finger on the aperture, pouring water at the same time down the open top tube until the air is suffi-



ciently compressed to resist the ingress of any more; the water will then flow to the height of 18 or 20 inches for the space of half-an-hour. To repeat—draw the water from the tap and perform as before.—(*English Mechanic and Mirror of Science.*)

### NOTES AND GLEANINGS.

A MEETING of the supporters of the GLADIOLUS SHOW, which it is proposed to hold on August 17th, is to take place at South Kensington on the 16th inst., at 1 P.M., to consider the arrangements to be made and the prizes to be offered.

— WE are glad to learn that Mr. ALEXANDER MCKENZIE has been recommended by the Parks Committee of the Metropolitan Board of Works to assist in preparing the plans for the plots of ground on the northern Thames Embankment, in the purchase of the trees, &c., and in the laying out and planting; and for this assistance he is to receive the sum of 200 guineas. We may add that Mr. McKenzie has lately published a pamphlet entitled "The Parks, Open Spaces, and Thoroughfares of London," containing, as may be supposed from his long experience as a landscape gardener, many valuable hints for the embellishment of the metropolis.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

JANUARY has been a fine seasonable month, with just enough of frost to check vegetation. Had we experienced the severe cold that sometimes occurs after a mild November and December, the effects must have been very serious. We must not, however, be cheated into indifference respecting February, and withdraw protection from tender plants in matted beds and frames, or from vegetables when a regular supply is required. Whilst frosty weather continues all wheeling of manures, composts, &c., ought to go on uninterruptedly till finished, to save the walks in the spring. As the frost has not penetrated deep yet, digging and trenching all spare ground for spring crops must be proceeded with. The ground for Onions ought to be left very rough for the frost to pulverise it; they are a crop to which great attention ought to be paid, for they are in general demand. Although few seeds can now be sown, yet any preparations necessary should be carried out without delay. Old Cabbage ground which has been under sprouts since last August will now be available for other purposes. Where plenty of Coleworts have been provided, some of the latest of the July sowings will supply their place and stand over for early Cabbage. Old Cabbage ground should be trenched and well manured, as Cabbage is an exhausting crop. It is generally followed by a second sowing of Peas, the Peas in their turn

succeeded by Celery beds in the Scotch fashion, and this course prepares again for any of the Cabbage tribe. Some good beds of Horn Carrots may be sown directly, sprinkling a little Radish with them. Cauliflowers may be turned out of their pots from the cold frames, putting four strong plants under each hand-glass. See that spring-sown Cauliflowers do not draw if raised in heat. Let them be pricked out betimes. Let the Peas and Beans sown in boxes be hardened by degrees in the cold frames preparatory to transplanting. A good breadth of Broad Beans should be planted for the main crop; the Green Longpod will be found very good. A portion of the Celery may be taken up to check "running," and be laid in "by the heels" very deep. Let Celery be immediately sown in heat; also the Portugal or Tripoli Onions intended to be grown to unusual size. Round Spinach and a little Parsley should shortly be sown on a warm border.

#### FRUIT GARDEN.

The nailing of Plums, Pears, and Cherries, except on back walls, ought to be forwarded at all favourable opportunities. By the middle of the month Apricot, Peach, and Nectarine trees may be commenced; it is advisable to wait till the buds begin to swell a little, as too early pruning only hastens that event, which is not desirable in our fickle springs. By disbanding all superfluous shoots in summer the knife has very little to do except in shortening the shoots; and by putting all the available hands on, the nailing is soon finished. Let the trees be washed all over with a mixture of soft soap, quicklime, sulphur, and soot as soon as nailed; it may be put on with a garden engine. Protect the blossoms as soon as they are in danger.

#### FLOWER GARDEN.

It is in the present day too much the fashion to attempt to keep up large gardens with little means, nothing can be more unsatisfactory or disappointing. With how much pleasure do we view a small garden replete with floral beauty and neatness; and how different are our feelings on seeing an extensive place with great capabilities but exhibiting a want of finish. Let us, therefore, remember in all that relates to a flower garden, that order and neatness are indispensable. The smooth and verdant turf, the fresh and neatly-raked surfaces of beds and borders, the flowing sweeps of walks displayed in well-defined margins of shallow depth, the walks themselves brimful of bright and warm-coloured gravel, the freshness and beauty of the evergreens unencumbered by faggots of dead wood, add to these thousands of Aconites, Snowdrops, and Crocuses, protruding their tiny heads cautiously through the soil, as if fearful of appearing prematurely—picture all this, and we have what an English garden should be in February. All alterations should now be determined upon and carried out without delay. Prune Roses from which you wish to have an early bloom, but defer pruning the more tender ones till March. Furze branches are excellent shelter for tender Roses; they do not hold wet like moss, and are excellent screens from the sun's rays, which do much mischief by suddenly acting on the frozen parts.

#### GREENHOUSE AND CONSERVATORY.

It will now be time to set early Fuchsias to work; for where size is required much growth should be made before the tendency to flower becomes strong through increased light, especially amongst the shy-wooded kinds. The old plants may be disrooted, and the roots trimmed and afterwards washed in tepid water to cleanse them of all impurities. The plants should be repotted in free and mellow soil, containing a large proportion of vegetable matter and sandy peat, and should forthwith be plunged in a very moderate bottom heat—75° will be quite sufficient. Remove all plants to the conservatory or show house as they come into bloom, altering the arrangement frequently so as to impart a fresh appearance to the house. Return all plants to the stove or greenhouse as they go out of bloom; and such plants as Euphorbia jacobiniflora, Poinsettias, and others which have done blooming, may be set aside and kept comparatively dry for a time.

#### STOVE.

Stove plants in general will now require an increased amount of atmospheric moisture with a slight advance in heat. All such advances should be made for the most part on the afternoons of bright days, when solar heat can be shunt in early, and with a moist and wholesome atmosphere. As the Orchids show signs of excitability, pot them if necessary. Keep a sharp eye on insect pests at this period. Start such plants as Stephanotis, Dipladenias, and Clerodendrons, both young and old plants, and recollect that a genial bottom heat is what they

delight in. *Rondeletias* must also be cut in and started in the warmest part of the house; and *Crowea saligna*, at present in the greenhouse, must have its side branches shortened in and be placed in the cool end of the stove. Do not excite *Ixoras* at present, but young plants of all kinds, to make the most of them, must be started immediately.

#### TANK-FORCING.

Follow up a proper succession of the plants named in former calendars. Take care to maintain a circulation in the atmosphere as often as the heat will permit; this secured, use abundance of atmospheric moisture, especially in the afternoon and evening.

#### COLD PITS.

Having turned our back on, I should hope, the severest part of the winter, one of the first acts of the coming spring should be, to use a commercial phrase, "taking stock." The cold pits and frames containing stores of half-hardy plants should be closely examined. Most of our best cultivators of half-hardy flowers for the modern massing system, lay in their stock by propagation during July and August. Amongst these in the majority of cases will be found blanks, and some of the best store pots or established plants of the kinds should be introduced into heat in order to procure early cuttings. No delay can be permitted in this matter, for much of the success in massing depends upon having plenty of forward, well-established, and well-hardened plants at bedding-out time.—W. KEANE.

### DOINGS OF THE LAST WEEK.

THE continued frost is what we hardly expected, and especially with a south wind. On the evening of the 28th there were some signs of a thaw, and but little frost all the evening, but after midnight the cold became severe, and the night with us was the second coldest of the season. In such weather protection to all things in the least tender became a matter of importance. Where there was no artificial heat, protection was the chief point to attend to, and uncovering quite a secondary consideration, provided the plants were not induced to grow in the dark. In cold dull days *Radishes* in use, *Lettuces*, *Endive*, *Calcenolarias*, *Cauliflowers*, &c., remained uncovered; but young *Radishes*, *Carrots*, and *Potatoes* receiving little heat, were uncovered whenever there was the chance of a gleam of sunshine, or even of light free of fog and mist. We had a rather fine day before the frost set in early in the afternoon, and on that day most of the subjects referred to, including *Calcenolarias*, *Radishes*, and *Potatoes*, had the lights drawn off for several hours, and in some cases the glass was fresh cleaned, so that all the light possible might reach the plants now growing. In such keen weather it would have been imprudent to do so, even to obtain the benefit of a bright sun, as the air was still frosty in the shade, and, therefore, tilting up the glasses a little behind was all the air-giving deemed necessary, and that was removed early in the afternoon. With a small amount of air previously given, so that the temperature of the enclosed atmosphere may rise and fall gradually, the sun heat will rarely or never draw or dwindle plants as artificial heat will ever do when not counteracted by the firming processes of light. In severe weather we have had pits and frames to which light was never admitted for a month, and when uncovered the plants merely looked as if they had had a sleep of eighteen hours in the dark; but such covering-up would be ruinous to anything that was excited to elongation by the application of heat in whatever form.

A veteran told us that once a number of gardeners came to see his frame of Cucumbers with fruit to cut on New Year's Day, and with nothing to help him in the way of heat except the stable dunghiep. The day was cold—frosty and windy, with snow falling thickly—and at midday, the time of their visit, the glass was carefully covered up, and the covering had to be removed that they might have the desired look inside. There was a knowing look from one to the other, as much as to say, "Ah! we have found out now, how he heats us. I shall certainly keep my plants warmer and covered-up in future," and they did with the results that might have been anticipated—having their plants weak and eaten-up by vermin. The clever old man said, "Of course, once now and then in such a day was better than exposure to what could hardly be called light; but if they had only asked me, I would have told them that that day was quite exceptional, and that if they had called on a fine clear day they might have found me washing my glass sashes. As for my first crop, I generally had a double

set of sashes for the darkest months, and quickly slid on a clean dry sash as one damp and a little dirty was withdrawn. The second lot of sashes came in for the second bed."

During dull days we did a good deal of washing even on the outside of glass, so that the plants beneath might have all the advantage of the light at this season. Thorough cleanliness of the glass is much more important in the case of pits and frames, than even in that of houses of any sort, with either steep roofs or upright glass in front. In such houses the light goes one way or another pretty directly to plants—around them and beneath them; but in flat pits or frames it merely affects the upper surface, and but very obliquely then. On this account pits and frames, however useful, especially for keeping, will never compare in winter, for the healthy growth of plants, with a house that commands more light, and from upright glass can have that light pretty directly instead of in an oblique direction.

One hint more as respects protection with litter, though it may be a repetition. At the *Calcenolaria* pit, some litter used for covering had been so often wet, knocked about, &c., that its value as a protection over glass was approaching its minimum, and the litter was more difficult to apply owing to its being worn so short. With the frost ranging from 10° to 16° and more below the freezing point, we had some fears respecting the low back wall of the pit, and therefore used the old covering to lay loosely against the bricks, to prevent free radiation from them. This was all the more necessary, as the wall plate of that pit was always rather narrow, and the water that fell on it, therefore, instead of dropping from the necessary groove on the ground, was apt to drop on and trickle down the wall. After continued damp weather, therefore, the wall would become damp, and in this case was more apt to be acted on by the frost than if it were dry. A damp wall would part with heat very freely. Hence we have known cold pits so well protected with mats and litter over the glass, that no frost that has yet visited us could penetrate, if the litter was rightly, or even very moderately managed, and yet the plants inside were mostly destroyed, because the enemy entered at leisure through the brick wall, where nothing had been done to oppose entrance. Where walls of pits are at all high—say from 3 or 4 feet outside measure, a very effectual protection would be to tie against them a thin layer of wheaten straw—say from 4 inch to 1 inch in thickness. Hardly any frost would thus injure the wall, it is so difficult for either heat or cold to pass such a number of tubes filled with air.

This leads us to repeat, that the drier and the opener the material the better will it act in arresting radiation. When, in severe weather, the covering is not removed for some time, the surface at least should be turned, broken, and fresh shaken. This is of great importance, as every fresh turning breaks the lines of radiation, and forces the frost to begin its work again at the surface. In Murphy's year (1834), when there was roasting of oxen on the ice of the Thames—when for the first and as yet the only time in our life, we left the skin of our fingers on the outside iron latch of the door at five o'clock in the morning, and could with difficulty get off with that loss—and when, as a consequence, thousands and even millions of plants, as *Mignonette*, for the market, were destroyed—one man, at least, saved long ranges of such pits without injury, the contents of which sold well in the market; as though he had but a small covering of long litter, he and several assistants stopped up from 9 a.m. to 9 a.m., and kept moving and turning the litter all the night through, going regularly from end to end, and thus forced the frost after each turning to begin its work anew. Often on a sudden frost we have prevented its entering our pits and frames by shaking and turning the litter the first thing in the morning, when, as a general rule, the frost is more intense than at any other time—say an hour or two before sunrise.

In the kitchen garden, pleasure grounds, and flower gardens, we took the opportunity of turning over roughly all pieces that had been rough-rigged, trenched, or dug, that the frosty air might have free access to it; and took the opportunity of wheeling whilst the ground was hard, so as to clear out all old hotbeds, and thus have them in readiness for fresh work for the season. In fact, this was roughly done as we proceeded.

By pulling out *Cucumbers* plants whose bearing was nearly over, we have made preparations for inserting numerous cuttings of bedding plants, and among others, as we shall be short of the brown *Coleus*, we shall insert in small pots all the largest leaves, taking them off close to the stems, and inserting them deeply enough for the base of the leaf to be a little in the sandy soil. These, when they callus at the base, soon

emit roots, and ere long from the fleshy base thus formed they throw up tiny shoots. They like a rather close atmosphere to do this, and the base of the cuttings not to be too moist. For this purpose, and helping on, as now, some young Cucumber plants where the heat is not too much, we find little boxes very handy for setting over them. The boxes are 21 inches square, 9 inches deep at back, and 11 or 5 inches deep in front, with sloping sides to suit. They are made of 1-inch deal, and one square in a slight frame covers them. The square can be reversed at will, so that all trouble with damp glass is avoided. In the case of young Cucumbers, as they grow too tall for these shallow boxes, we have only to elevate the boxes a little at a time. A very mild bottom heat does for such plants as Cucumbers when small, and for cuttings when first inserted. When we can place such a handy little box over them beneath the sash of the pit, air can thus be given to a nicety, and in the sunniest day there will be little or no necessity for shading, as the double glass and the space between make the light more diffused, though bright, before it reaches them. Even fresh-potted young Cucumber plants never flinched in the least in the brightest day we have had, and the more direct light cuttings will stand the more quickly will they root, and the more sturdy will the young plants be. We strike many plants in a slight hotbed or pit with merely the common sash over them; but they will root more speedily, and require less attention, if they have such a covering in addition. These boxes cost very little—we forget now how much exactly—and, of course, there is a little loss of wood from the sloping sides, though that makes them more handy to move, and when set in a bed sloping with the outside sash, the light has greater effect inside than if the box were equal in depth all round. Boxes thus made, with a moveable square of glass over them, and of any suitable size, become very useful. In this Cucumber pit, heated by hot water, the pit for soil is only about half the width—3 feet. We shall not want it for Cucumbers until the plants are strong, after being several times repotted. Meanwhile, in this shallow pit, we have put some of our hottest tree leaves, covered with dry ashes, and as we can lay hands on some old window sashes about 3 feet long, with small diamond panes held in their places with lead in the old-fashioned way, we shall lay these across from side to side, and thus have at once a good propagating bed. These will not be so good as the boxes referred to, as the cross-diamonding of the lead will give more shade. The cottager who can nail four pieces of wood together, so as to make a box without a top or bottom, and then have a piece or pieces of glass to cover the top, may any day have a propagating box to put into his small hotbed. If he made a tin or iron bottom to it, and a waterproofed bottom 2 inches beneath it, he could have a warm box for cuttings and seeds in his window, or any protected place where light could reach them. Such a box, a foot square, set on the ground, with a square of stout glass on the top of it, would winter a dozen Cauliflower plants.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending February 1st.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . 26	30.926	31.188	31	13	88	38	E.	.00
Thurs. . 27	30.150	30.118	30	12	86	37	S.	.00
Fri. . . 28	30.683	30.629	35	14	86	37	S.E.	.00
Sat. . . 29	30.048	31.693	41	11	35	36	S.E.	.01
Sun. . . 30	29.966	29.722	46	36	35	36	S.	.00
Mon. . . 31	29.816	29.598	45	37	37	36	S.	.00
Tues. . . 1	29.806	28.772	48	38	47	35	S.	.04
Mean.	30.046	29.919	40.71	21.83	33.50	36.49	..	.08

- 26.—Sharp frost; frosty fog; clear and very frosty.  
 27.—Frosty fog; dense fog; fine at night.  
 28.—Sharp frost; densely overcast; clear and fine.  
 29.—Dense fog; very fine; clear and frosty.  
 30.—Sharp frost; very fine; clear and fine.  
 31.—Densely overcast; drizzling rain; clear.  
 1.—Cloudy; overcast, but fine; drizzling rain, brisk wind.

#### TRADE CATALOGUES RECEIVED.

E. G. Henderson & Son, Wellington Road, St. John's Wood, London, N.W.—*Catalogue of Flower, Vegetable, and Agricultural Seeds.*

C. Pocock, Wincanton.—*Catalogue of Seeds, &c.*

W. Samson & Co., and W. & T. Samson, Kilmarnock.—*General Catalogue of Seeds, Plants, &c.*

Edward Taylor, Malton.—*Catalogue of Agricultural, Kitchen Garden, and Flower Seeds.*

Thomas Sampson, Preston Road, and Houndstone, Yeovil.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*

#### TO CORRESPONDENTS.

We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

Books (Inquiries).—Of "British Wild Flowers," 108 numbers are published. Eighty plates are included in each volume, each may be charged a guinea. The work will be continued until our native plants have all been portrayed.

PLANTING GLADIOLUSES (W. H. M.).—Plant them in rows 12 inches apart, and 9 inches from bulb to bulb in the rows. Plant at the end of March.

CINERARIA FLOWERS GREEN (Noblet).—Whenever the parts of a flower usually coloured are green, the plant bearing that flower is also usually abnormally healthy. This is the case with your cineraria. If the flowers were all removed, and the plant not so highly fed, nor kept in a very moist atmosphere, other flowers, we think, would be produced normally coloured.

ORCHIDS FOR WINTER (J. W.).—The information you seek is in the series of notes now publishing in our Journal.

GRANITIC PLANT (Ald Reader).—It was advertised in our Journal last week.

NEW WARM FRAME (Amateur, Dublin).—We find that the suggester of the frame (not Mr. Pearson, who is more liberal), objects to drawings of the frame being published.

POTATOES WITH HOLES IN THEM (Fenn).—We presume that the holes were made by slugs, or a small centipede (Geophilus electricus). If by slugs, they can be applied to the soil at the time of digging, preparatory to planting, and a top-dressing of lime early in the summer, will be the best applications. If the centipede is the cause of the evil, we know of no remedy except searching for the vermin when the soil is dug. The centipede variety is not more liable to insect attacks than are other varieties. If your soil is heavy or wet, try Mr. Fenn's ridge-and-trench system; it must check slugs by keeping the tubers drier.

THERMOMETERS DISCORDANT (Veritas).—We believe that the authorities at the Kew Observatory correct the errors of thermometers for a very small charge. If you have one corrected, and we make that your standard, you can compare the others and mark upon them, whether a degree or two must be added or subtracted from the temperature they indicate.

GRAFTS OF PLYMOUTH DUCHESS PEAR.—"C.Z." wishes to know where he can buy some.

WHITE-EDGED AND GOLDEN-LEAVED PELARGONIUMS (G. M'Dougall).—We sent your queries to the best of authorities, and the following is his reply:—"There are several very good pure white-edged Pelargoniums in commerce. I think Walham Bride may be considered among the very best. Castlehill is also good, as are also White Lady and Silver Chain. The two last-named I know to be excellent borderers. The finest Golden-edged or Golden Self Pelargonium I have tried are Yellow Gem and Star of Gold. Stella Variegata is not a sport from Benton's Stella, but a seedling from Mrs. Vernon, fertilised by the pollen of Mangles Variegated. See 'History of Ornamental-foliated Pelargoniums,' second edition, page 27. The reason why Stella is so much better than the variegated sports, which I believe have all proved identical, while Stella Variegata is quite distinct from them in habit, foliage, and colour of flower—P. GRIEVE."

PEAS FOR SUCCESSION (Jack, a Young Gardener).—Six sorts of Peas for succession are:—Dickson's First and Best, Laxton's Supreme, Prize-taker, Champion of England, Princess Royal, Lord Raglan, and Neplus-ultra. A crop of the first early kinds ought to be sown at the same time as the first of the general or second crop is sown, so as to secure a succession.

EARLY POTATOES AND LETTUCE (Lion).—To have Potatoes by the third week in April, you should lose no time in making up a bed of leaves about 2 ft. high, with a little stable litter for the sides. It should be about a foot wider than the frame every way. Put on the frame and lights; when the heat has risen place 6 inches of good, rich, light soil in the frame, and when this is warmed through plant strong Ash-leaved Kidney Potatoes about 15 inches apart, and 3 inches deep. Keep the lights close until the plants are up, and then admit air whenever the weather is mild, and protect at night from frost. As you want the frame in March, earth them when about 4 inches high and put up a temporary frame of boards for the sides and ends, which should be 15 or 18 inches high; and having laths placed across it, you can cover the Potatoes at night, and in the day if the weather is cold. If you cannot obtain boards, then bend some sticks over the bed, so as to form a support for the protecting material. The Potatoes must be kept from frost. The Lettuces you may forward by now making up a bed of leaves, about 2 feet high, in



ement on the face of the brickwork becomes cracked. We fear the asphalt would not serve you better than cement. Your only plan will be to form a sort of bank of earth all round the pond, bringing it up about a foot higher than the brickwork, and you may make it interesting by rockwork.

**VINES BREAKING (A Working Mechanic).**—It is not too early to commence forcing the Vines. To obtain very early Grapes, forcing is commenced in November. Begin with a temperature of 45°. You can have "In-door Gardening" put free from our office if you enclose twenty postage stamps with your address. It contains weekly directions for Vine culture.

**GRAFTING VINES (A Vine-grower).**—The usual mode is thus described in "The Vine Manual," which you can have from our office post free if you enclose thirty-two postage stamps with your address. It contains much on the subject, as well as on all modes of cultivating the Grape Vine. "The right season for grafting the Vine is just when the buds of the stock to be grafted are beginning to swell, the scions being kept at rest till that time arrives. Vegetation in the stock should always be in advance of that in the scion. The best mode is the common one, named whip or tongue-grafting. The engraving illustrates this mode—*a*, the scion; *b*, the stock. Choose a well-situated branch or lateral near the bottom of the Vine; cut the head off slanting at a part where a scion can be fitted on best; then cut a slice off upwards about 1½ inch long, slanting inwards; make an incision downwards about the centre of the last-made cut, taking great care that the knife does not slip through nor yet injure the bark on each side; then prepare the scion. The scion should have one bud near the top, and another near the bottom; make a sloping downward cut on each the same length as that on the stock as possible, and in or near the centre of this make an upward cut, which forms the tongue; lay the knife down, and gently draw the tongue into the cut on the stock. Every part of this operation must be done with a knife as sharp as a razor, and every part should it neatly and perfectly. One point must be particularly attended to, and that is, that the bark of the scion and the bark of the stock meet exactly together on each side if possible; but if the scion is smaller than the stock, then the bark must meet on one side and at the bottom. This being successfully accomplished, tie, with matting, the scion pretty firmly to the stock, and then cover the whole of the cut parts with either the grafting-wax or the grafting-cloth, excepting the uppermost bud of the scion. If a little wax is put round the clay ball, it will keep it moist and preserve it from cracking."



**FAIRY RINGS ON LAWN (A. M. L.).**—They are produced by the mycelium of a fungus. The only remedy that we know is to make holes with a crowbar about 6 inches apart, and 1 foot deep, where the grass has the peculiar dark green appearance, and water several times with lime water, made by placing 1 lb. of lime in 20 gallons of water, allow it to stand for forty-eight hours, and employing the clear liquid. Fill up the holes after the third watering, and sprinkle salt over the patches, making them just white but no more.

**TRUMBURGH HANRIET GRAFTING ITS FLOWERS (J. H. S.).**—The only reason we can give for the plant not flowering is its roots having a limited room in the border, and the watering with sheep-dropping liquid at this season is not desirable. The leaf sent is a good specimen, but the cause of its browning we cannot explain. We think the plant will flower finely when the season is more advanced.

**RAISING QUINCE AND PARADISE APPLE STOCKS (W. E.).**—These may be either propagated by layers or cuttings. If by layers, a few plants should be planted out in some odd corner at about 4 feet apart, and cut down rather closely to the surface of the ground. The shoots produced should be layered in the autumn, the layering being done by pegging them down flat on the surface of the ground, or a little below it, and young upright shoots with roots will be produced in the following summer; these taken off in winter form the stocks. If by cuttings, put them in as you would those of the gooseberry, in some light soil, where the Apple stocks will root freely. The quince, however, requires more warmth than we have here naturally, so that they are benefited by being placed upon a bed of some soft fermenting material early in spring. In this way they root in spring.

**NAMES OF FRUITS (C. E. A.).**—We are not quite sure about the name of your Apple. It is a great beauty.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### POLISH FOWLS.

SOME of your correspondents have been pleading (and most justly, I think), in favour of separate classes at poultry shows for their favourites, the French varieties. I venture to urge that whilst these new sorts are remembered, our older friends, the Polands should not be forgotten. What show, I would ask, can be considered complete where these most ornamental fowls are not represented? And yet, how often we see them obliged to compete in the "Any other variety" class! I maintain that this is not as it should be, as the Poland is one of the handsomest and likewise one of the most distinct (I would also

add, that I believe it to be one of the purest), of the known varieties.

The Poland has scarcely justice done to it from another and a very important point of view, for in addition to its being one of the most beautiful of all, it is also one of the most useful. It is an excellent fowl for the table, not very large, but very plump, fleshy, and particularly well-flavoured. The Polish hen is a very good layer, and lays a large and rich-tasted egg. She rarely wishes to sit, but when she does, she performs her duties as an incubator and mother in an exemplary manner—none better.

The Polish chickens are very hardy. I believe this is in opposition to the general belief, but I do not hesitate to assert its entire accuracy. I think they are more easily reared than the generality of fancy poultry; indeed, some farmers' wives in this neighbourhood (Louth), consider them to be harder than Cochins, and I think that must be something in favour of the robustness of their constitution.

I was pleased with a remark made by, if my memory serves me well, "WILTHEIR RECTOR," when he said that there should be more numerous classes for the different varieties of fowls. I think it a very sensible suggestion, and one that if acted upon would tend to make poultry exhibitions much more popular than they are even now. The committees of poultry shows should study to obtain as much variety as possible. I am aware that, generally speaking, the great difficulty would be a financial one, but the prizes for the less popular varieties must be of smaller value than those for their more numerous brethren. Some of these classes might not pay at first, but I fancy they would in the course of a short time. The Polish fowl should have three classes at any rate—one for Golden, one for Silver, and a third for White-crested Black; and at the winter and autumn shows, and where it can be done, there should also be classes for adults and for chickens, as no fowl so imperatively needs them as the Polish.

We seldom hear now-a-days of the other varieties of Polands, and I am afraid several of them are pretty nearly extinct. They have languished for want of more encouragement. I once possessed twelve varieties of these fowls—viz., Golden and Silver-headed, ditto unheaded, Black-crested Black-headed, a fowl of great beauty, being perfectly black throughout; White-crested Black, White-headed and unheaded, Grey, Blue, Buff, and Golden pencilled—exactly like the Golden-pencilled Hamburg in colour and marking. Several of these are, I think, no longer in being, at least in this country, although, I should think, they might be met with on the Continent. However, the three best known sorts, the White-crested Black, Silver, and Golden, are now sufficiently well-known, and general to merit separate classes. They are more cultivated now than they have been for some time past, and I feel sure that were they awarded due encouragement they would not fail to make still greater progress.

The White-crested Black is a fowl that never fails to strike the beholder with the beauty of the contrast between its snowy-white crest and its coal-black plumage. The Silver is also a very prepossessing fowl with its beautiful large full crest, its extremely bushy neck, and its correctly-marked body; but I confess to a preference for the Golden-spangled over all the other varieties. What can be more beautiful than a Golden Poland cock in full feather and in good condition? His colours are of the richest, and his shape the most perfect. For my own part I must say that I care more for shape, brilliancy of colour, and perfection of marking, than I do for enormous size in the crest. Of course, crest being the distinctive feature in the Polish fowl, none with a decidedly small crest should merit a place in a good collection; but I do think that brilliancy of colour in both cocks and hens should be more sought after than it has been hitherto. I should like the Golden Poland hen to be shown with a perfectly clear tail, as clear as the best Silvers, and still to be of a rich, dark, golden brown colour; and I feel confident that when this fowl is more generally cultivated than it now is, we shall see specimens more perfect than any which have hitherto been exhibited. As far as my fancy goes, I do not care for very dark fowls, because these nearly always have the drawback of a black crest until their first moult; nor yet do I care for the very light ones. I think the shade of colour which should be set up as a standard, should be about halfway between the colour of the darkest Golden-laced Bantam and that of the Golden-spangled Hamburg. The shade of the latter is too much of a brown and too little gold to please me in a Poland. As to their marking, I must own that I have no great preference between spangled

and laced, although, to speak candidly, I never did see a hen yet either perfectly spangled or perfectly laced. Perhaps if they could be bred as perfect in marking as the Spangled Hamburg, that might be the preferable mark, but up to the present time that has not been attained, nor do I think it will be just yet. All seem to blend the two kinds of marking more or less.

In conclusion, allow me to apologise for occupying so much of your space, and to express the hope that the various committees will be able to see their path clear for giving more encouragement to the Polish classes. They deserve it.—G. W. BOORMY.

P.S.—I should have mentioned that out of about eighty Golden Polands bred during the last season, I have had about sixty pullets. This breed with me always throws many more pullets than cockerels.

### ADVICE TO EXHIBITORS.

We often hear exhibitors complaining of mismanagement at shows, but in most cases I think the blame belongs to them rather than to the Committees, at least my experience leads me to believe so. I would therefore say to exhibitors—

Write your names and addresses perfectly clearly. If this were done the saving of time to secretaries and others would be immense, and fewer errors would then be found in the catalogues. Ladies should either write *Mrs.* or *Miss* before their names, for who is to know whether they are married or not? Read the rules, and be sure your birds are entered in their right classes; do not act so foolishly as many people do—viz., pay the entry money, expenses of carriage to and fro, and perhaps get your valuable birds injured, besides the trouble and annoyance, and all for the purpose of having them ticketed "disqualified—wrong class." Fill up and return your entry forms before, and not after, the entries have closed; should there be separate forms for poultry and Pigeons, make your entries on each accordingly. Do not trust other people to make them out, but do it yourself. State the ages as accurately as you can, also the names of the varieties to which the birds belong. Fix a price for your birds, and do not write a few days before the show takes place, asking to be allowed to alter it. Neither send too little nor too much money for your entries, or write and say, "I will pay my entry money to you at the show." When you send, let it be a post-office order or cheque, and altogether avoid stamps; by doing so you will save much trouble, annoyance, and loss. Send your birds off so that they will be certain to arrive in time for competition. How many prizes have been lost through birds arriving too late to compete! If you buy any specimens at the show, pay cash for them, and do not promise cheques or post-office orders.

By observing these few rules it is astonishing how the business part of a show might be facilitated.—AN AMATEUR.

### PROFIT OF POULTRY-KEEPING.

I AM very glad to see in the last number of the Journal two reports of poultry profits, and I feel challenged again to report my own progress. "L." hatches his Houdans very well, but he does not feed them well enough, and my profits, with only six hens, far exceed "M. E.'s," with his seventy-six Light and Dark Brahmas, &c. My six were three Cochins (two old), two Brahmas, and one Dorking, with a Brahma cock, and their productions for the year as follows:—Chickens hatched, 106; eggs laid, 953; cost of food, £12 0s. 2d.; chickens killed, £12 16s.; chickens sold, £14 9s.; value of eggs, £4 10s.; total, £21 17s.; profit, £9 16s. 10d.

My food is the best barley twice a-day, barleymeal once, and plenty of clean water, some green meat, and for run only a nicely limited space. We generally hatch all the eggs we set, rarely lose a chicken, and the care we take is within easy reach of everyone.—A. W.

### THE FRENCH CLASSES AT THE LONDON POULTRY SHOW.

I THINK that it was a mistake to make so many classes of Hamburgs, and so few of the French classes, for I believe after a time we shall find that both Houdans and Crève-Cœurs will be largely bred in this country. They and La Fleche are evidently variations of the same breed. The latter is, probably, too delicate to be of much service here, and indeed, except in one district of France, is not a favourite there, but the other two are likely to be most valuable breeds. I know fewer handsome birds than a good Crève-Cœur, and the Houdans are hardy and well-conditioned. Another point I would allude to in

the late Show—the want of proper notices in the way of advertisements and large posters. I saw at all the stations bills about "Triplé Fillies," "Hairless Hares," and such-like monstrosities, but not one about the poultry Show. In the same way in the journals specially devoted to such purposes, the advertisements were very scanty, and yet publicity is the very life of such shows. You have hit another blot in the non-publication of the catalogue. Surely it would be better to publish it as soon as possible, and then on the evening before the Show is open to the public to publish a separate sheet with the prizes, as is done, indeed, at the flower shows. I need not say that all seemed to have worked with a will, nor that in every way in which courtesy and attention could tend to remove difficulties, and make all go smoothly, Mr. Wilkinson did his very utmost. I would also say that the work was too heavy for the Judges. There ought to be six for such an entry; it is not merely the time, but a person's head becomes tired, and wrong judgments are often made.

And now with regard to the classes. The Houdans were very fine, and exhibited in goodly number. Of the cocks there were fifteen, and Mr. W. O. Quibell obtained the first prize with a good bird, Mr. Dewrey being second with a fine cockerel, and my neighbour, Mr. Dring, of Faversham, third with an older bird. Some of the birds were heavy, but I would observe, that while we must try for increased weight, it will be a great pity if we gain that by the loss of symmetry. Of the two varieties, I personally prefer the darkest of the Light breed. The Dark breed was also well represented, but in some of the male birds there was a deficiency of crest; in fact, I think the Judges were at fault, and I question if the breed is as yet thoroughly understood. Of hens there were eleven exhibitors. Here Mr. Crowley took the prize from Mr. Quibell; the birds were very fine, and of great breadth across the shoulders—a point in which this breed shows one of its excellencies.

In Class 22, "Cocks of any other variety," there were thirteen exhibitors, of these first were La Fleche and Crève-Cœur. I cannot say that I was greatly struck with the superiority of the birds which obtained the prizes; but it is not difficult to judge two breeds now so very distinct as La Fleche and Crève-Cœur; it is like having to judge Dorkings and Cochins in the same class. In the cock class the first prize was given to the Crève-Cœur, and in the hen class to La Fleche. To my mind there were other birds better than these, but, then, outsiders are always better judges than those actually engaged! I see a manifest tendency to get "homochy" birds through the wish to increase their size. A Crève-Cœur ought to be well down on his legs, not lanky; but if this is too much to be expected, we shall have waddlers instead of the noble, "grace et force" bird, as he is described by M. Jacques. In the class for hens there were but eight entries; of these three were La Fleche, and here this breed carried off the first and third prizes, and Crève-Cœur the second. The hens of the latter breed were not so good as I have seen them, but there were many like myself deterred, I think, by the unsatisfactory nature of the class. My neighbour, Mr. Dring, had as good birds as those exhibited, and so I think had I myself.

May I add here, that if the breeders and admirers of French fowls will agree to subscribe, so as to make up a cup for each of the three breeds at the Palace Show, and the Committee of Management will agree to make separate classes, I shall be most happy to add my contribution?—D., *Deal*.

### DUBLIN POULTRY SHOW.

A FEW of the most noted poultry breeders on the other side of St. George's Channel, having determined to establish an annual poultry show in Dublin, have carried out their intention in a manner that certainly reflects the highest credit on all parties concerned; the systematic manner in which everything was arranged being quite equal to anything we ever met with at our longest-established poultry exhibitions. Of the Exhibition Palace, Dublin, the whole of the interior of which was devoted to the purposes of the Show, we need say but little—in fact it is a second Sydenham; and from the building being used as a winter garden, the Exhibition, when the arrangements were complete, carried with it an elegance of character not to be found at any other poultry show ever held in the United Kingdom. The plan adopted was a row of pens down the centre, and one tier on each side, so that each avenue devoted to the visitors was in all cases fully 15 feet wide, with breaks at intervals in the centre row for the accommodation of anyone desiring to pass to the other side. A grand and novel addition to the beauty of the Show arose from the fact of all the side pens being backed up by large and very valuable specimens of trees in full vigour, forming a background that can only be appreciated by those who witnessed it. From the galleries on all sides, Clematises, Westias, and Passion-flowers were trained in various devices, as well as in lovely festoons of fully 30 to 40 feet in extent. Many groups of plants in full bloom, or berried, added attractiveness to the scene, and several excellent military brass bands relieved each other during the whole time of public admittance. The warming apparatus did its duty most successfully, and certainly the view from the galleries, open for the promenade in the evening, when the gas was fully lighted, and a multitude of gaily-dressed ladies were present, could only be fitly compared to a fairy scene. With all these unusual accessories, none can wonder at the Dublin Show being a great success, and such as its projectors may well be proud of.

Grey Dorkings were exceedingly good, and to the credit of the Fister Isle, all the prizes remained at home. Of Silver-Grey Dorkings there were many excellent specimens; the old cocks, however, were mostly deficient from gaunited sickle feathers, a defect to which they are very liable after the second or third moult. It is well for exhibitors to note that it is far better to show them in their natural state, even with these imperfect sickle feathers, than to remove these altogether. The *Cochins*, though as classes not equal to what we are accustomed to see in England, were as far as the prize pens were concerned of exceedingly good quality. Mr. Zuerlein in Whites, Mr. Strick in Partridge-feathered, and Mrs. Burrell in Buds being the principal winners. In the last variety (Buds), a magnificent cock shown by Mr. Joshua Harvey of Newbury, Ighiteham, and another pen from the same gentleman contained an excellent Dark Brahma cock, were both thrown out completely for being sent without hens—this oversight is the more to be regretted as the Cochins was unquestionably the best cock in his class, and the Brahma with a hen as good would have been also in the prize list. Exhibitors cannot err by being too careful in their examination of prize shuffles before entering. In the *Brahmas*, the birds shown by Miss Burrell and Mr. R. W. Boyle were such as are but very rarely equalled. The Light Brahmas were not nearly so good, and many of them were well high worn out by over-exhibition. The display in the *Leghorns* breeds was of unusual excellence, and the competition in the *Spanish* class was good throughout. The Hon. Miss Douglas Pountney taking first and third prizes, and the Messrs. Newitt second position. *Andaluses* were good but mostly overblown. *Pouter* were all good, most of the White-crested Blacks were gems. Such classes of *game* fowls have never before been shown in Ireland, the so-called *Down* birds of Messrs. Brierley, Fletcher, and Julian standing prominently in the prize list. Mr. J. Crossland had it all his own way in the *Game Duck* class. The *Faberges*, a first-rate class, kept the prize at home. Mr. J. C. Cooper proving quite a monopolist with pens remarkably well shown.

All the *Waterfowl* were of a quality rarely equalled, and the Ornamental varieties of *Waterfowl* were beyond parallel. We cannot recall every variety shown, but there were *Salsburgers*, *Canada*, *Cercopis*, and *Chinese Geese*; and of *Ducks*, the *Kasarka*, or *Ruddy Shell Duck*, the *Shoveler*, *Bahama*, *Carolina*, *Shell Ducks*, *Mandarins*, and many others, all exhibited in the very height of good condition and feather.

*Pigeons* throughout were entries from the very best birds in the kingdom, and we may add to the prize list we printed last week, that the special silver cup for the greatest prizetaker in Pigeons was secured by Mr. Fulton, and the collection cup for poultry by Mr. Brierley, of Middleton.

Quite a novel touchpiece to a poultry show was introduced by the Committee of the Dublin Exhibition—viz., prizes for cats! It caused much merriment from its singularity, and some really handsome specimens were entered. As each cat had to be sent with a collar and chain attached, they proved far more easily managed than was at first anticipated, and the interest of this portion of the Show to many of the lady visitors was evident.

### MY TRIP TO BRISTOL.

"What! all the way from London to Bristol only to go to a poultry show? Why, I do think you must be going poultry mad." Such was the exclamation of my wife when she heard of my intended visit to Bristol. I, however, explained to her that my madness only extended to Spanish fowls, and was after all a very mild form of the disease, and that Bristol is with regard to Spanish what Newcastle is considered to be to coal. She soon saw the force of my argument, and even went so far as to say that perhaps, after all, if I saw the best of the kind there, it might be of service to me in my future attempts at prize-taking. Thus the matter was settled. So taking an express train from Paddington, of I started to Bristol on Friday morning (Jan. 7th), and after rattling over the iron road for three hours found myself at my destination, the rain pouring down in torrents. This, and being an utter stranger to the place, were enough to cast a damper upon the most ardent fancier; but "all despatched" being my motto, which, by-the-by, is a good motto for all young fanciers who wish to meet with success, I trudged on, and soon found myself at the Ride Drill Hall. I must say I was much struck with the suitability of the building. I do not think that any other better adapted to the purpose could be found in any town in England. The arrangement of the pens was admirable, being in single tiers. For the most part all the birds could be seen to advantage, and plenty of space to walk between the rows of pens added much to the pleasure of inspection, as two or three could stand in front of any birds that particularly took their attention, and discuss their merits without inconveniencing the other spectators; but sorry am I to have to say the benefit of this latter arrangement could not be fully appreciated, for, alas! where were the spectators? I could see but very few. Ah! thought I, no doubt the rain has kept them away; or, probably, the charge, 2s. 6d., is being the first day. It will doubtless be crowded to-morrow. But no, the next day was nearly as bad both as regards the rain and lack of visitors.

And now a few words about the birds. Spanish being the only class I know much about I shall confine my remarks to them. And first, it is to be attributed to modesty, generosity, or oversight that there is not a ten-guinea cup awarded to one of the Spanish classes—a class

for which Bristol has become renowned. The first prize and cup for the two best pullets was taken by Miss Hyde with an excellent pair of birds, smooth in face and excellent in colour. I thought the Hon. Miss Douglas Pountney's birds were extremely good for the quality and smoothness of their faces. This lady took the second prize with a first-class pair of birds which were claimed at £10, Mr. H. Lane being third. I noticed the cockerel belonging to this gentleman, which, if I mistake not, took the first prize at Birmingham, was here only highly commended. He is a very good bird, smooth in face, and with good drop, but, sad to say, slightly dry-tailed. Mr. Lane, however, carried off the first prize and cup with an excellent specimen, Mr. P. Jones second, and Mr. H. Beldon third. For the best cock over a 14-month year old Miss Hyde was first with a really good bird, his face being pure white and very smooth. As a whole this class quite came up to my expectations, and fully repaid me for my journey. Many of the birds in the other classes were splendid specimens.

After viewing the Show I retired to the entrance adjoining the Drill Hall, where I was introduced to Messrs. Lane, Beldon, Jones, Hyde, and others, and spent an agreeable hour or so in chatting over my favourite subject, and a more pleasant or agreeable company I could not wish to meet. I thought, How much we fortunate am I than poor "Black Domino." Why, if he were here, it would make up in some measure for his sufferings caused by the bad company he fell into at Birmingham.

On the following morning two or three other visitors and myself sallied forth in spite of the pouring rain to view the Clifton Suspension Bridge, that being an old friend of mine for many years in London during the time it did service at Hammersmith Market; but it had so got up in the world, and with the addition of its handsome carriage way, that I could scarcely recognise it. The view that is obtained from it in the present position is most charming. In the afternoon we visited the yards of one of the largest breeders of Spanish in Bristol, who received us with every courtesy and kindness, taking us over his various walks, explaining his method of rearing early chickens, and giving us one or two valuable hints regarding the management of our favourites.

I returned to town much pleased with my trip and the kind manner in which I had been treated by the Bristolians, but saddened by the recollection of the scantiness of the visitors, for it appeared to me like spending a rich banquet and having no one to partake of it. In conclusion, I would cordially recommend young fanciers to visit all the shows they can, for it is only by seeing to what patch of excellence birds are bred by others, and to what extent at the various points in the different breeds are capable of being developed, that they can judge of the merits of their own stock, the probability of success should they feel inclined to enter the lists as exhibitors, or even of the quality of any birds they may be about to purchase.—BLACK SPANISH.

### TORQUAY AND WESTERN COUNTIES POULTRY SHOW.

POULTRY shows are "stepping westward." Bristol Show just over, Torquay on the 23rd and 24th of February, and Bath and West of England in June. It is of the second mentioned that I would now speak; the schedule is before me, and it is liberal—four prizes for each class of poultry—viz., £4, £2, £1, and 10s. This is well. Then there are two prizes for each variety of Pigeons, one £2, the second £1. And Miss Baretts Counts has kindly given a silver challenge cup, value £10, for the most successful exhibitor of poultry, and the Pigeon exhibitor of like qualification will get a silver cup value £5. It is somewhat odd that one old and striking variety of Pigeons is omitted—Turbits, while prizes are offered for Antwerp, which as exhibition birds are inferior. The soft feathery and varied beauties of the Turbit should always secure it a class, to say nothing of its being a very ancient variety; while the Antwerp is the very backbone of Pigeons, with no biceage, and only a sharp fellow.

The arrangements for the Show promise well, but it is a first show, and so I would not expect too much, but hope to be able to tender towards the Committee. The labours and difficulties of committeemen are not sufficiently considered. I heard lately of a gentleman requesting the secretary of a large show to meet his birds at the station and see them off on their return, generously offering to pay cab hire! Such a thing is utterly impossible. Secretaries and committeemen work all day and almost all night, never sitting down for hours together. I would recommend the Committee to give all possible publicity to their show in Torquay, as well as in the poultry papers. I know the place and the vast number of people whose only business is their daily walk, and who would be very likely to walk into the Show, if they knew of it. Boards or placards with "Poultry Show this day," are the right things to bring visitors.

I regret that a show of cage birds has not been added, for so large a place as Torquay must have many admirers of the Canary and his congeners. I wish the Torquay Show every success, and its Committee well, if it be successful, be rewarded for their labours.—WYTHSHIRE RECTOR.

### CREWE POULTRY SHOW.

The second annual Exhibition was held in the Cheese Hall and Corn Exchange, Crewe, on January 25th and 26th. There were up-



Staffordshire potteries. I have not "the pen of a ready writer," and if "WILTSHIRE RECTOR" lived within reasonable reach of this part of the world, should take the liberty of asking him to spend a day or two among the fancy and give you an account of the same, for the subject is worthy of better treatment than I can give it.

The fancy has very much degenerated within the last ten or fifteen years, but seems to have passed the worst now, and is likely to be popular again. I am sorry to say that Pigeon-flying, although a very beautiful and interesting fancy in itself, is patronised by very few respectable men, and is disfigured by a greater amount of rascality than even dog or poultry-exhibiting, or horse-racing. The birds kept in this neighbourhood seldom tumble, and are small compact birds with very short beaks, self colours and splashed. They are paired without any regard to colour, and are generally flown two or three times a week. The chief point is, of course, the length of time flown, but a good flight always has a leader and fly in a solid pack, almost touching each other and at a great height. If anything happens to the leader it spoils the pack for a time.

I fear that "OLD BOB RIDLEY" and "READER" will not believe me, but I can assure them it is not unusual to fly seven or eight hours; and I know a man on whose word I can always place the most perfect reliance, who has flown a pack of twenty-one for upwards of seven hours, and a flight of three chokner (birds with black and white flights) Tumblers for eleven hours forty minutes. I am not aware that this has ever been equalled, but of course a flight like the above could only be made under the most favourable conditions as to weather, and by birds which had been carefully bred for many years and at the very highest pitch of training and condition.

I can produce several respectable working men to speak to these flights. I am aware that birds sometimes go off to a neighbouring town, drop there, and come home in the evening, thus getting the credit of a long flight, but I am speaking of *bona-fide* flights where the birds have never been lost sight of for many minutes by parties interested both for and against them, and where "drumming" has not been resorted to. Conditioning the birds is a very important point, and is made a great secret of by the crack men.

There is always great danger of losing first-rate flyers when the clouds are low. In this case the flight frequently drops at some neighbouring town, and is generally appropriated. If the owner comes to look after his birds he usually finds that they have either been sent out of the way for a time, or in some cases are so cleverly dyed that he cannot own them, and the man in possession has used a long history of each. They are then carefully "altered"—in fact they are rarely flown until they are paired or have bred, and even then very often return to their old quarters.

The power of sight acquired by Pigeon-flyers is something wonderful. I always know one of the fancy by a sort of bend in the neck and habit of star-gazing.

First-rate flyers are frequently bred so fine that it is next to impossible to breed from them, and the young ones feather very badly. The breeders then have to resort to a coarser cross, and to breed it out again as quickly as possible.—BROWN REX.

### FANTAIL PIGEONS.

I BELIEVE white to be the original colour in Fantail Pigeons for the following reasons:—

1. It is, so to speak, the universal colour of these birds.

2. These Pigeons came originally from Hindoostan, and Anglo-Indians, themselves bird-lovers, tell me that the universal colour there is white. In reply, it may be alleged that coloured birds have been imported from India. So, excellent Norwich Canaries I have known to be imported from Madeira, but they were exported from England first.

3. The white of the Fantail, like the black of the Barb, is a unique colour; it is snowy, and will bear the comparison; the black of the Barb is also perfect, but a white Barb is tinged, and a black Fantail is not a good black.

4. Setting aside my own personal experience in fancy Pigeons for now thirty years, Mr. Brent, the best of all Pigeon writers, and the author of the only original work on the subject since Moore, and who was an ornithologist as well as a fancier; in his classification of Pigeons (*vide* page 105 of "The Pigeon Book") says, "I have placed what I believe to be the original colour or variety of each breed first." Then follows his list:—"Carriers, 1, black; Pouters, 1, Blue Pied; Fantails, 1, white," &c. His whole list is to my belief correct.

5. There is a tendency in birds to return to the original colour; in Canaries to grey or green, in Fantail Pigeons to white.

I further believe that colour other than white is obtained from a cross with the Runt, 1st, because the Runt has the same trembling motion; a male Runt would give colour, and then breeding with white Fantails would recover the tail. 2nd, The ablest old Pigeon fancier I ever knew told me he so crossed them and bred them for gentlemen fancying a certain colour. The dark cock brings dark, a white cock white. 3rd, The dark birds are runish in shape.—WILTSHIRE RECTOR.

The subject of Fantails having been mooted simultaneously by "WILTSHIRE RECTOR" and your able reporter of the Glasgow Show, I am induced to ask for the opinion of fanciers upon the *quæstio vexata*—What should a prize Fantail be? We have at least two well-established sub-varieties of this breed—viz., the graceful Scotch variety, which seems almost to realise perpetual motion, and the larger and coarser English variety, with the flat, circular, almost horizontal tail; and between these two extremes there are, of course, an infinite number of gradations.

Now, this leads to great confusion with both judges and exhibitors, the former hardly knowing what to exhibit, the latter puzzled how satisfactorily to award the prizes. If by common consent a "Standard of Excellence" could be established, fanciers would know what points to breed for, and judges would be able unhesitatingly to perform their duties. Theoretically a Fantail should combine the excellencies of each type, but from some mysterious law, which we may call the law of correlation of parts, it would appear to be impossible to obtain more than mediocrity of carriage with excellence of tail; and, in the same way, the converse holds good. The idea of a perfect Fantail is perhaps even more Utopian than that of any other perfect Pigeon; so that, could a decision be come to as to which end—head or tail—is to have precedence, this popular breed might be raised from the present somewhat inferior position to which too great laxity of taste has degraded it.

If some of our principal exhibitors, breeders of the Fantail, such, for instance, as Mr. Balpin and Mr. Huie, would do as "WILTSHIRE RECTOR" has done in the closing paragraph of his interesting letter, and let us know whether we are to continue to breed chiefly for the flat circular tail, or are to strive to obtain such "broad-tailed shakers" as are justly enlogised in your report of the Glasgow Show, much good would result to the fancy.—J. E. S.

P.S.—Such minor matters as colour, plain-heads or point crowns, &c., may be safely left open for the present; at any rate until the more serious part of the question shall have been settled.

### SKY TUMBLERS AND BIRMINGHAM ROLLERS.

I DID NOT include Birmingham Rollers in my description of Sky Tumblers. What I did say is not affected in the least by what has been said since. It is nothing new for me to hear that broken Baldpates are good flyers. I have generally found that when a Sky Tumbler and a Baldpate breed together, both birds being strong, and, moreover, good coarers, the offspring surpass the parents in flying, or in tumbling, and sometimes in both, and I have no doubt if careful selection were made of the best birds, a very good high-flying, long-flying set of mongrels could be established. The thing has been done again and again.

I have no doubt, if Birmingham would speak out, it could tell of cotes in its vicinity, of this high-flying, long-flying character. The owners might not in every instance descend to the consideration of whether the birds were selected transitionals, or an established breed; because a Pigeon is a Pigeon, no matter what its ancestors may have been.

It is with the knowledge that one is always liable to overrate one's pets, that I consider a man is pardonable if he happens to dignify with the appellation of "pure breed" birds which are pearl-eyed, hazel-eyed, odd-eyed, feather-legged, clean-legged, mottled, and pied. At the same time, I think he would not necessarily be an ignorant Pigeon-fancier who should be puzzled to say what breed this is. Nature does now and then disport herself in strange sort, but to this extent in a "pure breed"—no, no, no! This law of accidental transitionals being superior to, or rather let me say of being aggravated from, both parents, may be shown to obtain in other "breeds" than the Birmingham Roller. The Pointer claps, but he cannot clap like his son, with a Tumbler hen for the mother. Other parallels might be adduced. Mind, I am

saying nothing against the Roller Pigeon. All I wish to say is, that it is not the Sky Tumbler I described.—**OLD BOB RIDLEY.**

A KIT of birds once a-day in the sky has been my delight for a quarter of a century. The sort of Pigeon "Old Bob Ridley" makes mention of, with broad breast, short legs, and a short beak, is quite gone from this part. Fifteen years ago they were in the town. They were black-mottled, with black flights. They would be good for one hour, and that was considered an extra length of time.

My kit consisted of forty Pigeons. Three parts were my own breeding, therefore I knew what spirit those birds had, and could depend upon them doing their work, and they had that daily, unless snow was on the ground. Three hours was their time on the wing. You might fly on your back and watch them. They would be out of sight for one hour, and the remaining two as compact as a cricket ball, and they seemed mere specks.

There was a match here, and noticed in *Bell's Life* and the *Leicester Advertiser*. There were fifteen birds each, the longest on wing to be the winner. Mine were on the wing seven hours and a half; the winner seven hours and three-quarters. I could find numbers that will fly five hours, but these extra long flights are caused by artificial food and the manner of giving it to the birds, so that a beginner has no chance to compete with one who has been accustomed to the tricks of feeding, which varies according to the time you require them to fly. They must be fed like a racehorse, and when in condition for flying, should have the flesh as hard as a nut kernel, which brings out the muscles and feathers as fine as silk. Our birds are various in colour—red or black saddles, badges on odd sides, and every one should roll or double-tumble, at the turn of the kit.

"Old Bob Ridley" speaks of twelve how nicely they crack their wings before tumbling; that is a great fault, it is idleness from carrying too much fatty flesh. I would beseech that lot, or the bird that drops before the kit. I have sold scores that have dropped at two hours to the cages, and one such is quite sufficient to spoil a whole lot in a very short time. There is one young gentleman who is very fond of starting his kit at five o'clock in the summer time, and has to light them in at ten o'clock with candles, and in some cases cannot get them down, so that he is obliged to put the eggs in the oven all night, and to sit up so that they should not become too hot. This is not a solitary case. A splendid eighteen were flying over home last week, and were watched for six hours. All were lost except one, since found at Derby, twenty-six miles away.—**LEICESTER.**

### THE HIMALAYAN RABBIT.

UNFORTUNATELY MY JOURNAL OF HORTICULTURE for 1869 is at the binder's, and as I have no other copy of my first letter about the Himalayan Rabbit I cannot say whether it is so worded as to countenance the strange mistake into which Mr. Hudson has fallen. It may be so, as it certainly never occurred to me to guard against the supposition that I deemed a cross between a Rabbit of any breed and a veritable Chin-chilla as possible. What I mentioned was, a cross between the Silver-Grey and the Chin-chilla varieties of the common Rabbit. Had Mr. Hudson referred to the book I quoted he would not have written his last letter. Here the correspondence, as far as I am concerned, must end. Whatever may be thought of Mr. Darwin's theory, every naturalist knows that as an accurate observer and recorder of facts he stands without a rival.—**DUCKWING.**

### DR. PREUSS ON FOUL BROOD AND INFECTION.

(Concluded from page 38.)

The idea that foul brood has been introduced by the Italian bees must be entirely discredited. I have seen it in an apiary and in a district in which Italian bees had never existed, and have found it in stocks of pure old Prussian origin, whose ancestors had undoubtedly furnished our heathen aboriginal Teutonic forefathers with honey.

I do not venture to decide whether or not Leuckart is right in supposing that a connection exists between the foul-brood fungus and the muscardine of the silkworm. It is possible that both may have a common origin, and that both may be traced back to the same first cause.\*

\* It has been urged, as a reproach against Professor Leuckart, that by expressing at the Darmstadt meeting, in 1869, an opinion that a relation existed between the foul-brood fungus and the muscardine of the silk

A bee-keeper residing in Baden has written me, stating that his bees obtain water from dung-puddles, and that he believes that this may be the cause of foul brood in his apiary. I indeed hold this to be probable, as fungoid forms luxuriate in dung-hills, and may from thence be carried by bees into their hives.

Relying upon the fact that nitrogen is found in the cocoons of the bee-nymph, their presence has been assumed to be the cause of foul brood. This is disproved by experience as well as theory. If cocoons were the cause of this disease, it must be a universal evil, as all stocks, if only a few months old, contain them, but we never heard of their producing foul brood. The web spun by the bee is of the same construction as silk, which is an incorruptible substance.

**The Prevention of Foul Brood.**—The mode of preventing foul brood is in accordance with the causes which have been alleged for it. In the words "we are careful to enforce the greatest cleanliness everywhere" is comprised the receipt for preventing foul brood. As by this means we keep even the wax-moth, which, where it prevails, may be deemed as bad as an infectious disease, far from the apiary, so do we prevent in the most effectual manner the importation of those more minute enemies the *Micrococcus* and *Cryptococcus*. The following precautions may be especially mentioned:—

1. We only purchase stocks from apiaries which are known to be healthy.

2. We use, if possible, only the purest honey for feeding bees. Careful preparers of honey, such as I know in my own neighbourhood, scrupulously separate all combs containing brood and pollen from the honeycombs, and the delicious product thus obtained is sure to keep unchanged throughout the year. If, however, we possess only badly-damaged honey, we may still use it as bee-food if we boil it for some time and give it immediately. As before stated, all fungoid forms are destroyed by boiling, and all danger may in this way be obviated.

3. We remove from the hive all dead bees, refuse wax, &c.

4. We provide the bees with pure water. In every apiary should be found a large dish filled with moss, in which clean water is supplied daily. This is a convenience to the bees, and prevents their visiting dung-heaps.

**The Cure of Foul Brood.**—If we discover foul brood in a hive, the first thing we do is to remove the queen, in order to stop the deposit of brood, and thus withdraw the pabulum of the disease. I would here refer to what Dzierson says in page 273 of "Rational Bee-keeping." She is returned afterwards,

worm, he countenanced the parasitic theory which he combated in 1860. This fact, also, however, only reduced to the fame of the illustrious naturalist. Science is never-ending, and scientific instruments have during the last eight years been very much improved; whilst at that time the great importance of these minute bodies, the *Micrococcus*, which still appear but as dots under a microscope of many thousandfold magnifying power, was entirely unknown, as it is indeed an acquisition of the last few years. I may also recite a similar and far more striking example. No one, I believe, will question the title of Ehrenberg, who, in his old age, still lives in Berlin, to be considered the greatest microscopist of this century. In 1831, I addressed him as one of his old scholars, and asked him whether the itch-acarus, which is spoken of by old medical writers, really existed. His answer was, "The itch-acarus does not exist. I have examined all the cases of itch in the hospital, and have never found one." Some years afterwards a professor in Berlin offered a reward of 10,000 francs to anyone who would show him an itch-acarus. An Italian student, who happened to be present at the time, immediately earned the reward. He opened with a needle a burrow near the skin, and extracted the acar, which is indicated by a little black itchy protuberance under the skin, which is indicated by a little black speck, and is especially easy to find on the sides of the fingers, and to the astonishment of all, produced the itch-acarus, an animal easily visible to the naked eye. The student was familiar with a district in Italy where old women employ themselves in curing the disease by scratching and extracting the acar. At this time everyone is able to detect the acarus in its hiding place. Thus had Ehrenberg searched through the whole of the skin, and yet the faint traces of the mite under the skin had escaped him, through being concealed by its excrement. This, however, will in no way detract from this distinguished microscopist's immortal fame.

\* The silk fibre is so far from being a simple structure, that it consists of three different layers. The outside integument is a lime-producing material, soluble in water by long-contact with boiling water; the middle consists of albumen, which is soluble in boiling acetic acid; whilst it is the innermost fibre or acris that is nitrogenous.

I have a silken ribbon which I myself untwined from a skull which, being that of a bear relation, I know to have lain in the grave precisely forty-eight years. There were no minute perforations, no mildew, nor any traces of decay perceptible, and to-day, three years afterwards, it looks like new. When graves are opened we often find remaining un injured the cocoons of larvae which have been buried with the bodies, and have afterwards passed into chrysalides. A few years ago I examined a comb which had been thrown away twelve months before in a corner of the apiary. The wax had entirely disappeared, and the remainder consisted only of a kind of silken felt, which showed no signs of decomposition.

and again removed immediately on the re-appearance of foul brood, whilst every foul piece of comb is excised. As soon as we discover the disease in our apiary we commence a frequent examination of all the stocks, and (especially during the hot summer months) shift the infected colonies into purified hives. This purification may be effected in any way that will expose the hives to boiling heat (212° F.). We either put them into an oven, or wash them repeatedly with boiling water. When quite dry we wash them over with alcohol 92-97° of strength. Of equal efficacy in destroying all primary fungoid elements are the following:—

1. Carbolic acid,\* in the proportion of one part acid to one-hundred parts water, destroys all the lower animal and vegetable organisms.

2. Permanganate of potash (Condy's fluid), in the proportion of one part fluid to three-hundred parts water, is just as effectual.

Diluted sulphuric, nitric, or acetic acid is useful, but is not nearly equal in efficacy to the before-mentioned remedies.

The ground in the apiary should be turned up and moistened with diluted sulphuric acid, or strewn with unslaked lime;—

As there are no internal medicaments which will cure foul brood, we waste no time on their discussion.

If the remedies herein described are energetically and perseveringly employed, we may be certain that the disease will be cured, even if widely spread. We should as little think of killing bees as of throwing a sick child into the fire or water. The prompt excision of foul-broody combs, the purification of the hives as before recommended, and the disinfection of the ground, will infallibly work a cure.

I cannot close this article without thanking the Baroness Lina von Berlepsch for translating into English my first paper on foul brood, and transmitting it to America. Next to her, I have, in the interests of science, to thank Messrs. Dzierzon, von Berlepsch, Leuckart, Vogel, and Schmid for the approval which, partly in the Bee Journal and partly by letter, they have expressed of the results of my examinations of foul brood, as published in the autumn of last year. In this way are removed the obstacles to the general acknowledgement of a truth which even its opponents will not long be able to deny.

—DR. PREUSS, *Sanititätsrath.*

**CHLOROFORMING BEES!**—I once attempted to quiet an angry swarm of bees by slipping under the hive a sponge containing something over half an ounce of chloroform, and succeeded admirably. When they had become quiet, I removed what honey could be spared from their stores, and left them all quiet. They are quiet still, for the chloroform killed the last bee.—

DR. A. LOWE (*in American Southern Cultivator*).

\* A pound of carbolic acid costs 7½ silbergroschen (about 9d.). Half an ounce of acid to a quart of water is all that is necessary for washing hives.

+ Half an ounce of the permanganate costs 5 silbergroschen (about 6d.), and when diluted with water makes three quarts of an excellent wash for purifying hives.

† Mr. Pop, of Wollersdorf, near Wittgenau, recommends unslaked lime being spread on the floor-board, and covered with stont paper. This remedy may be considered a rational one, as the fallen particles of foul brood will, with the paper, be destroyed by the lime. Absolutely no result whatever can be anticipated from the fumigation of hives with brimstone.

## OUR LETTER BOX.

**DOORS (Dorking).—“The Pigeon Book.”** You can have it post free from our office if you enclose twenty postage stamps with your address.

**BRAMA COCK NOT FEEDING (W. B.).—**We should fancy the cock is blind, and does not pick up his food because he cannot see it. The physicking is enough to make him lose flesh, but if bleeding be added, the only wonder is that he is alive at all. We know nothing you can add to your treatment. Diseases of the tongue and throat in fowls are often curable by pouring small quantities of vinegar down the throat.

**ARRANGEMENT OF POULTRY YARD (An Enquirer).—**We suppose the orchard is grass, if so, it will make a good run. The pitched and paved yard is not good for fowls. If your houses are floored with bricks take these up. Alter the outlet from house n, and let it open on the gravelled yard. Let the door be quite in the house. It would be well if house c opened sufficiently for the direct passage of the poultry into the orchard. You can keep Crève-Cœur, Houdans, or Spanish, all excellent layers, but non-sitters. You can always get a broody hen. A part of the coach-house would do well for a sitting place. Ground fowls are good barley, barley meal, ground oats, and for a change, now and then some maize.

**WEIGHT OF BRAHMAS—PROPORTION OF SEXES (Otton Belchamps).—**Nine pounds is a good weight for a ten-month-old Brahma cockerel, ten would be better. Till they attain full size they should make a pound every month, but that is above the average. A pullet of the same age should weigh at this time 7 lbs.; that is a little above the average, but

we should not be satisfied with less than 6 lbs. Ten hens are far too many for this season, five are plenty. You may put twelve or fourteen in June. Your feeders should be of the best quality barley, maize, and barley meal. Neither rice nor potatoes are good as food.

**COLORS AND GLOSS OF COMBS (Hamburgh).—**Nothing but good condition will do it; a little meal will help, but it often produces too great a development, and the comb is very crooked.

**POULTRY FOR TASMANIA (H. C.).—**There is no doubt if they are properly accommodated they will bear the voyage very well, and it will answer your purpose to take them.

**POULTRY FOR GOVERNMENT (W. J.).—**For enforcement we like Houdans, Brahmas, and Crève-Cœur. As the first and last are non-sitters, we should for general purposes choose the Brahmas.

**WASHINGTON POULTRY (T. A. L.).—**Soak the feathers of fowls unless it is very carefully done. All that is really necessary to cleanse plumage is to wipe the feathers backwards with a sponge or piece of flannel soaped and dipped in water. If this is lightly done, the feathers are soon clean. The dirty water may be carefully wiped off, and the bird put in a basket of hay or soft straw before a fire till it is dry. The dust will very carefully manipulation. It is very delicate.

Many instead of washing the dust remove a few of the longest and most prominent feathers; this allows the under ones which are perfectly clean to appear, and, as a rule, they are the most delicate both in fibre and colour.

**POLISH FOWLS (J. A.).—**You are doing wrong in putting Poland in a room. No fowls will do well in a room—there is no earth or dust bath, there is no herbage, there is no animal life. There is not sufficient difference in the climate between the room and the outside to make such precautions necessary. Your feeding is good, continue it; let them have a grass run, and let them roost in a dry, sheltered house, with no sharp currents of air, with low perches and an earthen floor. The sooner you move them out of their pens, the better the better they will be.

**FOOD FOR SITTING HENS—SIZE OF NEST (J. E. M.).—**The same food as when she is not sitting will suffice. Less whole grain is preferable. A nest for a Dorking hen should be 20 inches square and well ventilated.

**MORRIS AND CO. (C. H. S.).—**Scattered eggs are not so properly to appear at our shows, more's the pity. Some thirty years ago there were beautiful birds, which some fanciers called “liver and white.” The head, flight, and tail should be clear, the breast mottled or marbled, the back the same, but the colour in larger patches. The more even the mottles the better the bird. Such birds are very pretty, but we fear with the present fashion for whole colours they would not have much chance of a prize, but breeding them would be highly interesting.

**NEWARK POULTRY SHOW. Mr. H. Spinnach took the first and only prize awarded for a single Game Bantam Cock, and not Mr. G. Pearson.**

**PRIZES FOR RABBITS (C. L.).—**The reason why Rabbits at Torquay are not included in the catalogue is probably why they are excluded from other poultry exhibitions—the entries do not pay for the prizes offered.

**EXAMINER OF ORNITHOLOGICAL SPECIMENS (Z. Major).—**We must first know what kind of live you wish to examine, as well as what it is that you wish to ascertain.

**FAIR-COLOURED CHAMP WINE (H. H.).—**You made what would be considered a good wine, an excellent wine of the non-fashionable champagne color—a faint rose tint. When produced from Black Hamburgh Grapes, will never colour like that made from the Espiran. The latter for colour, piquancy, and fine bouquet, is what I so strongly recommend, and will give you in a year, if you grow them, a good deal of giving about 50% of saccharine, which it usually attains against the walls of this house in the open air, it would give 30%. If you intend the wine to be effervescent, I would on no account artificially colour it; but if it is to be drunk as a still wine down from the oak, you should stir it into a couple of bottles of Beaujolais wine, or more, which would impart high colour.—ROBERT FENN.

## COVENT GARDEN MARKET.—FEBRUARY 2.

The frost having somewhat shortened our supplies, the growers have naturally looked for some advance in prices, but the general tone of the market has not been such as to warrant it, and accordingly we have but trifling alterations to report. Continental supplies are ample and good, comprising the usual articles. The Potato trade is heavy.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples..... doz.	5 0	5 0	Mulberries..... quart	8 0	8 0
Cherries..... lb.	0 6	0 6	Nectarines..... doz.	0 0	0 0
Chestnuts..... bushel	0 14	0 14	Oranges..... 100	6 0	12 0
Currents..... doz.	0 0	0 0	Peaches..... doz.	3 0	3 0
Black..... doz.	0 0	0 0	Pears, kitchen..... doz.	3 0	4 0
Pigs..... doz.	0 0	0 0	..... dessert..... doz.	3 0	4 0
..... lb.	0 0	0 0	Pine Apples..... lb.	0 0	0 0
Cobs..... lb.	0 6	0 6	..... doz.	0 0	0 0
Gooseberries..... quart	0 0	0 0	Quinces..... doz.	0 0	0 0
Grapes, Hothouse..... lb.	4 0	4 0	Raspberries..... lb.	0 0	0 0
Lemons..... 100	6 10	6 10	Strawberries..... doz.	0 0	0 0
Melons..... each	2 0	3 0	Walnuts..... bushel	10 0	16 0
			..... doz.	15 0	3 0

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes..... doz.	3 0	6 0	Leeks..... bunch	1 0	2 0
Asparagus..... 100	3 0	4 0	Lettuce..... score	1 0	2 0
Beans, Kidney..... doz.	3 0	4 0	Mushrooms..... pottle	1 0	2 0
Broccoli..... bushel	0 0	0 0	Mustard & Cress, pressed	0 2	0 2
Beet, Red..... doz.	3 0	4 0	..... doz.	0 2	0 2
Broccoli..... bundle	1 0	1 0	Pickling..... quart	0 4	0 8
Brussels Sprouts..... sleeve	3 0	4 0	Parley..... sieve	3 0	4 0
Cabbages..... doz.	3 0	4 0	Peas..... doz.	0 0	0 0
Capecians..... 100	0 0	0 0	Peas..... quart	0 0	0 0
Carrots..... bunch	4 0	4 0	Peas..... bushel	2 0	4 0
Celery..... doz.	1 0	1 0	..... doz.	6 0	6 0
Celery..... bundle	1 0	1 0	Radishes..... doz. bunches	1 0	0 0
Celery..... doz. bunches	2 0	4 0	..... doz.	1 0	2 0
Cucumbers..... doz.	3 0	4 0	..... doz.	1 0	2 0
..... picking..... doz.	0 0	0 0	..... doz.	2 0	8 0
Endive..... doz.	2 0	2 0	Shallots..... lb.	0 0	0 0
Garlic..... doz.	3 0	4 0	..... doz.	0 0	0 0
Garlic..... lb.	0 0	0 0	Tomatoes..... doz.	0 0	0 0
Herb..... bunch	8 0	8 0	Turpots..... bunch	0 0	0 0
Horseradish..... bundle	8 0	8 0	Vegetable Marrows..... doz.	0 0	0 0

## WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 10-16, 1870.	Average Temperature near London.			Rain in last 42 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
10	Th	Meeting of Royal and Zoological Societies, [8.30 P.M.]	Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
11	F		44.9	30.1	37.5	16	25	7	2	45	42	11	14 29 41
12	S		44.5	29.8	37.2	19	24	7	1	5	49	0	34 3
13	Su	44.9	29.6	37.2	16	23	7	6	5	8	1	35 4	
14	M	SEPTUAGESIMA SUNDAY.	41.3	29.6	36.9	14	20	7	8	5	4	2 32 5	
15	Tu	Meeting of Royal Geographical Society.	45.6	30.9	39.3	15	18	7	10	5	14	3 22 6	
16	W	Royal Horticultural Society, Fruit, Floral, [and General Meeting.]	47.0	31.3	39.2	17	16	7	12	5	33	4 7 15	
			47.0	33.6	38.8	11	14	7	14	5	57	5 38 7	

From observations taken near London during the last forty-three years, the average day temperature of the week is 45.5°; and its night temperature 30.3°. The greatest heat was 65°, on the 19th, 1831; and the lowest cold zero, on the 13th, 1855. The greatest fall of rain was 0.62 inch.

## CULTIVATION OF RED AND WHITE CURRANTS.



CURRANTS are, it is true, the smallest of our "small fruits," and as a general rule they receive a correspondingly small amount of attention. An ordinary crop of Currants may be secured with but little attention, and thus their accommodating natures are imposed upon. First-class fruit and first-class crops, however, can only be obtained from Currant bushes where care and attention are bestowed upon their cultivation. What a contrast be-

tween the crops and the quality of the fruit as seen in Covent Garden, from the market gardens round London, and those in most private gardens throughout the country! The produce is in general more than double, and the quality beyond comparison. Why should this difference be? Is it indifference? I almost think so. Are Currants deserving of this cool treatment? Few will answer in the affirmative. They do not take high rank as a dessert fruit, it is true, only being called upon for the sake of appearance in times of scarcity (the White excepted a little); a few strange palates relish the acid Red. When large and very fine, their handsome appearance tempts many a one to try them; it is, however, mainly to the kitchen they must go, to make tarts and pies, and to the confectioner to make preserves. Where is the household that can be without its Red Currant jelly and its Black Currant jam? Small ordinary Currants do not make so good a jelly as fine, large, well-grown fruit does, and double the quantity is required, nor so good a jam there being too many "skins and pips," and too little of the nectar itself. To the consumer the one is almost double the value, measure for measure, of the other, and actually more so to the producer, taking into consideration the scanty crop, and the great waste of time involved in gathering it. In proportion to size, the Red and White Currants will bear a greater weight of fruit than any other of our fruiting plants. The bulk of fruit will often exceed the bulk of the entire plant, leaves and stems together. This is indeed high cultivation, yet acres and acres of them are to be seen in our first class market gardens round London—for example that of Mr. Francis Dancer, at Little Sutton, Chiswick.

The Currant is a fruit for the poor man. It is hardy, of very easy cultivation, can be grown in the very smallest of gardens, and will yield the largest return of any. Like all our fruit trees, it may be made extremely ornamental with a little care in training and cultivation. The fruit itself is always so, and the plant we can easily make so, and that not, as in some other cases, at the expense of the crop, nor at the expense of any crop, but just the contrary. I am alluding to the form of the common standard, the form which above all others when planted judiciously, interferes least with its neighbour. It is, moreover, a form of training for which the Currant seems peculiarly well adapted, and greatly recommended by Mr. Dancer. Judging by some very fine examples I have seen in one or two gardens here, I like it very much. Some of the examples look so pretty, and so like a standard Rose tree,

that I have heard wagers made more than once that they were grafted or budded on Rose stocks; the popular idea associating that long slender stem (which the Currant also retains for years), and the mop-head, only with the Rose. I recommend the adoption of this style or form of training the Currant for small gardens as effecting an economy of space—the standards may be planted in lines along the borders, and other plants close to their roots—and for large gardens as making the useful ornamental, which, indeed, should be applied everywhere and to everything.

To secure standard Currants, nothing more is required than to select some of the strongest cuttings, put them in at good length, tie them to a stake, and allow them to grow to the desired height before allowing them to branch out. It imports vigour to shorten them in winter some few inches, and if more than one bud breaks push them all back to the one leader. To form the head, allow three shoots only the first season, and in winter cut these back to 3 or 4 inches. The shoots formed after this may be reduced in summer to five or six, or in winter to that number, cutting them back to the length of about 4 inches, the supernumerary ones almost close, leaving only a short spur. The head must never be allowed to become very large, because of the danger from wind. The points of the growing shoots might for this reason be also stopped, if found becoming too straggling during summer.

Currants may be grown in many other forms, such as the pyramidal. Pyramidal Currant trees are very pretty, but the plant does not assume that form naturally; the tree is long in being formed, and it requires a considerable amount of care in pruning to retain the shape. They may be trained to trellises with good effect, and on walls—on north walls, too, where few other fruits will exist. Currants on north walls are exceedingly useful, as they can be so easily protected from birds, and they afford a late supply—even as late as Christmas. When trained on walls or trellises the best form is the vertical; five or six stems to each plant, the stems themselves being spurred-in like Pear trees. I have frequently observed in private gardens in the country that the crop of Currants on the walls has been much finer than those on the bushes in the open quarters. The reason why I could not well tell until lately, when I began to think of the different systems of pruning practised; those trained as bushes are neglected as to their pruning, whilst those on the walls, for the sake of appearance, are regularly spurred-in, much in the same manner as practised by Mr. Dancer and other leading market growers. This system I shall now attempt to describe.

Having the cuttings—Irish cuttings—i.e., rooted, and two years old—ready to plant, in the market gardens they are planted in lines 6 feet by 1 foot, to allow of cropping between the lines, in good rich soil; for Currants, be it remembered, require a considerable quantity of manure to grow them well. In February prune the shoots down to about 3 inches; then, in the following spring, select four or five of the shoots, which will give to the bush the most natural cup-like form, and reduce their length to about 6 inches, these shoots being intended to form the

permanent bush. All the other shoots should be cut in to within an inch of their base, where the fruit will be borne in clusters. The following season in pruning pursue exactly the same practice, cutting all the shoots back, excepting those forming the framework of the bush (and these to 6 or 7 inches), to within an inch or so of their base; no matter how many or how strong and fine they may be, off they must come, the height which Current bushes are allowed to attain being about 4 feet. This pruning, cutting, and slashing in a field of Red Currants seems sad havoc and destruction to the uninitiated; the ground is strewn with wood and shoots, more than half of the plants being cut away—all the fine young shoots, indeed—and nothing left but four or five gnarled, knotty, and very ugly stems from which to obtain fruit, and to get which would seem impossible; yet when the warm showers of spring descend, the plants are soon draped with a thick garland of their pretty simple flowers, and then with the fruit. So thickly does the fruit hang on these ugly sticks, when well cultivated, that it may literally be gathered by handfuls. On no account must the bushes be deprived of their leaves in summer. In some gardens in the country I have observed a practice of cutting back the shoots with hedge-shears, on the plea of admitting light and air to the fruit. It is altogether a bad practice, and severely to be condemned. To attain the utmost success in Current culture, follow the practice of our great cultivators, who make it a paying matter—that practice which I have just described. Be not afraid of making the plants grow too strongly, for the more strongly they grow, the greater the crop they will bear. Apply plenty of manure, and prune them hard back, and the result will be astonishing.

I shall have something more to say on a future occasion respecting the selection of varieties.—ARCHAMBAUD.

### HYACINTHS IN GLASSES.

I HAVE now a dozen Hyacinths in water, all in superb condition, and, though they have not been in any way forced into growth, every plant is now from 2 to 3 inches in height; the foliage short, stout, and very robust, with a fine spike of beads rising up through the midst of it. From the time that the bulbs were placed in water, at the beginning of November last, up to the present moment, the water has been changed in but one of the glasses, and that because it had become tainted from some cause. In that case the roots of the Hyacinth, which were 8 inches in length, were carefully cleansed in some tepid water, the interior of the glass was cleansed also, and some fresh water added, and now the plant is as healthy as can be desired. The glasses occupy the window-sill and a small table by it, and are thus fully exposed to the light. All that I find it necessary to do is to keep the glasses supplied with water as the quantity decreases by evaporation; and I now fill the glasses to the brim, even though the bulb becomes nearly or quite submerged. If the foliage becomes drawn to the light the simple act of turning the glass round soon sets it right.

I have been led to state this much, because I have within the past two or three weeks met with cultivators of the Hyacinth in glasses who have complained of failures and have deplored their disappointments. Perhaps some cultivators err through too much attention, and injure the plants by overmuch kindness; at any rate, I am decidedly opposed to the advice that recommends a constant changing of the water unless urgently needed. I have known some indoor gardeners who have been in the habit—once a week at least, and in some instances more frequently—of changing the water, entirely removing the bulb from the glass in the act, and attempting to cleanse the delicate rootlets, I fear in many instances doing them material injury in the act. This is neither called for nor to be commended. I believe many failures result from two things—1st, that cultivators will not place a few small pieces of charcoal in each glass to purify the water; and 2ndly, and I much fear too frequently, from sheer neglect. I never think of growing Hyacinths in water without employing the aid of charcoal, and I always advise its employment. In the case of nearly all my Hyacinths the rootlets have so encircled, and, as it were, embraced the bumps of charcoal, that it would be impossible to remove them from the glasses without breaking the vessels, and the development of the foliage and spike is all that could be desired. Neglect is the sad destroyer of plants. I have frequently seen on a bright sunny day in the early part of March a row of Hyacinth glasses in a window, with the full force of the sun playing on them, and the glasses

only half filled with water; or else, neither is the window open to give ventilation, nor the blind pulled down to screen the plants from the roasting influence of the sun. In many of these cases the first love has cooled, and with inattention will come certain disappointment and decay.

If ladies especially could only come to realise in some degree the sweet pleasure of cultivating with average success some Hyacinths in glasses—to daily watch for the development of the leaves, and then the flower spike, buds, and blossoms, I am certain that many, very many, more would be induced to make an attempt; and I am also well assured that where neglect now destroys the pleasurable harvest there would surely be seen loving care and its fitting reward.—VIV.

### EUONYMUSES.

Or the recent introductions from Japan, for which we are mainly indebted to Mr. Fortune and Messrs. Veitch, amongst shrubs of low growth none are finer from the distinct and beautiful silver or golden variegation of their foliage, than some of the *Euonymus* family. They may be divided into two sections—the deciduous and the evergreen.

Deciduous *Euonymuses*, though the more hardy of the two, are not, as a rule, included in shrubberies. Why they should not so I do not know; but many of them are beautiful in autumn from the opening of the capsules, which at that time make them conspicuous, while most of the commoner shrubs are fast putting on the dreary frowning garb of winter. Apart from their merit as ornamental-fruited shrubs, their distinct habit and free growth ought to secure for them a place in every shrubbery, especially as the varieties of *E. europæus*, as well as the species, are proof against rabbits. The fruit, it ought to be known, are fatal to sheep. The flowers, though curious, are not particularly conspicuous; the foliage and fruit are the principal attractions of the deciduous kinds.

*E. europæus* and its varieties are the best for general planting, succeeding in most soils and situations. The white-fruited (*E. europæus fructu albo*), and red-berried (*E. europæus fructu rubro*), are the most remarkable for their fruit. *E. europæus latifolius*, with broader leaves than the species, and *E. europæus pumilus* or *nanus*, of less growth than the other varieties, are both desirable. All except the last-named attain a height of from 12 to 15 feet, and have whitish flowers at the end of May or beginning of June. *E. verrucosus*, or the warted kind, I have seen but little of; it seems to be of moderate growth, and curious. *E. obtusatus*, with singular reversed egg-shaped leaves; *E. angustifolius*, having narrow shining leaves, sub-evergreen; and *E. atropurpureus*, dark-purple flowered, are North American species, and succeed best in damp soils and situations, and are useful for shrubberies skirting American grounds.

The deciduous species and varieties are propagated from cuttings of the ripe young shoots, inserted in autumn in a shady sheltered border, in sandy soil. The cuttings should be 9 or 10 inches long, and put two-thirds of their length in the soil. They will be well rooted by the autumn following. Plants from cuttings flower and fruit at an earlier stage than those raised from seed, but the latter furnish the most vigorous plants. Seeds may be sown in autumn, or kept in sand until spring, and then sown in fine soil, covering them about half an inch deep. They are slow in germination. Keep the plants clear of weeds, water them in dry weather, and when a year old transplant them, not allowing them to become drawn up in the seed bed.

It is the Evergreen *Euonymuses*, or rather those with variegated leaves, that I think most worthy of attention, and I wish to make a few remarks on their suitability for decorative purposes in the flower garden and the fronts of shrubberies.

In respect to the flower garden, any shrub or plant that will stand our ordinary winters uninjured, and be equally effective at all seasons, must be more suitable than plants or shrubs, which require artificial protection for fully half the year. There is the dry aspect of the beds in winter, the labour and cost of wintering tender plants, propagation, taking up, potting and repotting, watering, and looking after, then the planting-out when other things also require attention, and many other considerations which must always militate against making too lavish a display in the flower garden by means of tender plants. The comparatively small amount of trouble given by hardy plants, and the greater dependence to be placed on their afford-

ing a display both early and late, as well as at the intermediate periods, must always be greatly in their favour.

The best *Euonymus* for flower garden purposes is *E. radicans variegatus*, for it is equally well adapted as an edging to beds and borders, for lines in ribbon borders, and for filling beds or panels in borders, and, indeed, it is suitable wherever a bright silver-variegated plant from 6 inches to 1 foot or more in height, is required. It is very pretty and effective, particularly during April and May, from the young growths having a golden hue, and on this account is very suitable for spring garden decoration. It is of rather slow growth, but this circumstance is favourable rather than otherwise, where a permanent edging is wanted. To form such quickly, plants if less than a year old should be placed 6 inches apart, and if planted-out in May, they will have grown sufficiently to meet each other by July. They need no care beyond pinching any shoots that grow too tall or straggling, and slightly pegging the shoots, so as to fill up spaces where shoots are deficient. A mulching of leaf soil in autumn will do good, and if put on neatly will not be very conspicuous. In the following year the edging will be in fine condition, and will continue so for many years, needing nothing beyond trimming off in summer any irregularity of growth. If the edging become too large, cut it back in spring before growth commences. In soils not very wet and very heavy, the plant is quite hardy.

This *Euonymus* is propagated by cuttings of the young shoots, when the wood becomes firm, as it will be at the end of July, or beginning of August. These 3 or 4 inches long, taken off with the growing point, are best. Trim off the leaves half way up the cutting, and insert it that depth in sandy soil, except that the pots are to be surfaced with half an inch of silver sand. The cuttings may be put in closely, and after doing so, give a gentle watering, set the pots on ashes in a cold frame, and dash the lights over inside with a thin coat of whitening mixed with milk. Place the frame facing the north; if not, shade from 9 A.M. to 3 P.M., or afford a position shaded from the sun during these hours. By the end of September the cuttings will be well rooted, and may be potted off singly in 3-inch pots, in a compost of two parts fibrous loam, and one part leaf soil, or very rotten manure, adding sand freely. Set the pots on a-beds in a cold frame in a sheltered situation, keeping them rather close for a time, then admit air freely, protecting, however, from frost and heavy rains. The soil should be kept moist, but not very wet; indeed, little water will be required during the dull winter months. In severe weather protect the frame with mats thrown over the lights. After the cuttings are fixed in the frame to strike, and after potting, if sprinkle with water as required, so as to keep the soil moist and the foliage fresh. In March, water freely, sprinkle the plants overhead in the morning, and pinch out the joints of every shoot at the third joint. Expose them fully during the early part of the day, but shut up early in the afternoon, having first sprinkled the plants overhead. Harden them off well before planting-out in May, protecting them from frost, as though hardy, from being grown under glass they are tender, and the young growths especially so. The mode of propagation above described answers for all the evergreen sorts.

There are two other kinds with silver variegated leaves. One of these, *E. tricolor*, has leaves about four times the size of *E. radicans variegatus*, each of narrowly margined with white, and edged with bright rose. The silver margin is too small to render this sort useful for flower gardens, but as a margin to beds, or groups and borders of shrubs, it is very effective. It is of low growth, and forms a dense, compact line about a foot wide and high. The plants require to be 1 foot apart for a close edging or line. The other silver-leaved kind is *E. japonicus argenteus variegatus*. The growth of this is erect, but by closely stopping or cutting back the shoots before making new growth, it may be dwarfed, and is then useful in the flower garden as a line or edging, and for filling beds. The leaves are large for a *Euonymus*, shining bright green in the centre, with a broad margin of white, but where this joins the green it has a light golden hue. It is one of the finest of all the varieties. *E. grevillei roseus variegatus* has bright silvery variegation, for the most part disposed over the upper part of the leaves, the base mostly green, with a narrow margin of white. The variegated portion of the leaves in a mature state is tinged with pink. The plant is of similar habit to *E. radicans variegatus*, with which it is often confounded, but the leaves are larger and broader, and the plant grows taller. It makes a first-rate edging.

*E. latifolius albo-variegatus* is very similar to *E. japonicus argenteus variegatus*, but the silvery variegation of the upper

part of the leaves is more decided. It is very fine. *E. aureo-variegatus* has a long, bright, shining leaf; the golden variegation from the base extends along both sides of the midrib, and irregularly spreads upwards, widening with the breadth of the leaf, and covering about half its surface. It is a free, erect-growing sort, and if left unstopped becomes loose and straggling. To keep it compact it should be stopped, at least until it becomes well furnished at the base. *E. latifolius aureus*, with an ovate leaf, bright shining green at the base, and the upper part bright yellow, is the best of all the golden-leaved sorts, and forms a fine line or edging wherever a permanent golden-foliaged plant is required. By pinching back the shoots it may be formed into an edging 6 inches high. It is the *E. ovatus aureo-variegatus* of some. *E. marginatus aureus* has a rather long leaf, bright green at the base, the upper part of a bright golden hue, and this variegation extends by the edges nearly to the base. It is distinct and good, forming a good bordering to shrubs. Though of erect habit it may be kept close by pinching back the shoots. The green variety or species, *E. japonicus*, has no other merit than that of being an evergreen with shining green foliage.

The adaptability of several of the above plants for many of the purposes to which silver and golden variegated tender plants are now devoted, will be evident to many who have seen them, and those who have not should lose no time in procuring a stock. All are hardy enough to stand uninjured our ordinary winters, and where not permanently wanted they may be taken up in summer, potted, and wintered in a cold frame, or plunged in a sheltered situation, affording a protection of mats in severe weather. Any good loamy soil enriched with leaf soil will grow them. It is scarcely necessary to point out, that for the fronts of borders of shrubs, whether in lines of one sort or disposed at intervals amongst low-growing evergreens, they have a fine effect.—G. DUNN.

## ESSAYS ON FLORAL CRITICISM.

I SEE by your last week's Journal that a very severe critic of the decisions of floral judges, and of the constitution and action of floral committees, wishes to know whether it is too much to ask me to say what I mean by the "very vague title, 'Floral Criticism,' and, moreover, who are to be the judges of the essays." The answer to the latter question I thought was given by the Council, in the announcement of the prizes offered. The judges are to be appointed by the Council of the Royal Horticultural Society, and I have no doubt that they will take all due precautions, such as "*D. Deal*," recommends, against a possibility of bias in the minds of the judges.

As respects "*D. Deal*," first question, I am obliged to confess that I am open to his reproach, if by "vague" he means "general." I purposely made the title as wide as possible, to allow the writers of essays to treat not only of the principles which should guide judges at flower shows in their decisions on the merits of competing plants, dressed out strictly in accordance with the fashion of the day, but also on those unchangeable principles of natural beauty, which some floral critics assert to be lost sight of in the artificially-trained specimens at present so much in vogue. Whilst, however, some of my horticultural friends lament this departure from the simplicity of Nature's loveliness in our endeavours after floral magnificence, others assert such departure to be necessitated by the unavoidable conditions of competition at flower shows, and others again appear to entertain a firm conviction, that if they had had a hand in creation flowers would have been far more beautiful than we find them to be as Nature gives them to us. I wonder if "*D. Deal*," who must have thought much on the subject, will tell your readers, without any unnecessary insinuations, which of the three opinions he entertains?

I was aware of the penalties of having "written a book," but I was not aware that the same penalties attached to encouraging others to write one.—HENRY Y. D. SCOTT.

## EASTER BEURRE PEAR.

I READILY comply with the request of your correspondent "G. S." for information respecting the Easter Beurre Pear; I have been long acquainted with it, and can testify to its excellence when grown against a wall. It is most uncertain in its time of ripening, in some seasons coming into use early in January, and in other seasons not until the middle or end of March. I have sent it in good condition to table in the Easter week; but with few exceptions it ripens perfectly, and is then

melting and engorged, this year particularly so, and it began to ripen about the 10th of January. The trees here are on two aspects between south-east and south-west; they are great bearers, and the fruit large and clean.

I have had no experience with the Easter Beurré on the Quince stock, but as a standard on the Pear stock it was worthless, and I have long since discarded it. The Winter Beurré was of the same character, and shared the same fate.

I am inclined to think there are two varieties of the Easter Beurré. There is a tree here which was some years ago grafted on a Duchesse d'Angoulême; its fruit ripens earlier, and is yellow when ripe, and, as Mr. Wallis has remarked, it is liable to decay in places before it is quite ripe; but the true variety, as I believe, is not liable to that defect; its fruit is greenish yellow when ripe, brown on the sunny side, and dotted with russet.—JOHN GREENSHIELDS, *The Gardens, Sarsden.*

### PRUNING NEWLY-PLANTED TREES.

"J. W.," in page 87, recommends that trees be planted in autumn, and not pruned till spring. He frankly owns that this advice is founded on experience, and not on principle. Now, if experience be really in favour of any course of action no theoretical argument can be admitted against it, but then the experience must be constant and extensive. Hitherto we have had two systems. The first proceeds upon the supposition that the amount of root and top ought to be reciprocal, and therefore when we move a tree in autumn, we ought at the same time to cut off from the top as much as is supposed equivalent to the root-injury. The second plan is to leave the top untouched, and allow it to grow at will for the first year. This is done under the idea that a free-growing top will produce free-growing roots. Of these two plans the first is considered the better in a dry country like France, while the second is suited to moist localities. "J. W." now offers to us a third plan. Not having tried it, I feel incompetent to give a positive opinion; but it certainly does seem that the vigour of the newly planted tree must be impaired by allowing its topmost buds to draw up the sap during the winter, and when they have appropriated to themselves the very life blood of the plant, ruthlessly cut them off. And if "J. W.'s" plan really does succeed, the only possible explanation that occurs to me is that when the upper buds are removed the lower will break later—that is, in warmer weather, and that such warm weather is favourable to the free growth both of the leaves and roots.—G. S.

### ACALYPHA WILKESIANA—THE ACALYPHA TRICOLOR OF GARDENS.

ONE of the most popular of the ornamental-foliaged stove plants of the present day in all probability is the subject of the present notice, the plant universally known in gardens as *Acalypha tricolor*. Its merits or demerits as a decorative plant will not, however, be here descanted on, nor will any attempt be made at speaking of the most successful treatment which it is possible to subject it to. Nevertheless, it is to be hoped that the remarks here offered may not be without interest, especially to those amateurs who desire to know what names are the most correct to apply to their favourites. In this particular instance, be it known, we have a plant bearing one name—*A. tricolor*, among cultivators and in all the gardening journals; and known by another name altogether, that of *A. Wilkesiana*, among botanists and in the higher class of plant literature; nor has the fact of the identity of the two plants ever been made known to the gardening world until recently, so far as I am aware; certainly no record has fallen under my observation. In consequence, I desire to suggest the general adoption of the name *Acalypha Wilkesiana* as being the more legitimate or correct of the two, since the desirability of uniformity in nomenclature must be apparent to all.

In all probability the plant was first discovered in the Fiji Islands many years ago by the United States' Exploring Expedition, which visited most of the Polynesian groups, and besides making observations on the general features of the islands, collected examples of their vegetation, our *Acalypha* among other Fijian plants. The name *Wilkesiana* was given in honour of the commander of that expedition, Capt. Wilkes, by Dr. Muller, of Geneva; hence it has priority in its favour. When Dr. Seemann, in 1860, visited these islands he also met with it, and, besides publishing in his excellent work, the "*Flora Vitiensis*," a beautiful coloured plate of it, he tells also some

interesting particulars respecting it. He states that, together with other fine-foliaged plants, it is frequently cultivated by the natives in proximity to their dwellings, and known by them under the name "*Kalabuc-damu*." He further says that the plant there attains to a height of 10 feet, and with its leaves varying intensely in the colours they display. We can readily imagine how highly ornamental it must appear.

Lastly, in its history, its introduction to our gardens by the Messrs. Veitch & Sons must be noticed—a fact which must be within remembrance of all, and though only some five or six years since, its propagation is so easy that it is now everywhere to be met with in hot-houses throughout the country. Hence dates the application of the name *Acalypha tricolor*, a name which has, I believe, never been more than provisionally applied, and never recorded in any botanical work whatever, so far as I know. It is in our nurserymen's catalogues uniformly quoted as introduced from New Caledonia, and though never having been fortunate to obtain any other evidence corroborating the fact that it occurs there, it is known for certain that the Fijian group is an undoubted habitat. For the future it is to be hoped that the plant will become everywhere known as *Acalypha Wilkesiana*, rather than as *A. tricolor*.—R. C. KINGSTON, *The Royal Herbarium, Kew.*

### LAXTON'S CROSS-BRED PEAS.

IN answer to Mr. Laxton's communication in your last number, it is but fair to reply that I am informed that neither Messrs. Carter nor Messrs. Hurst have ever catalogued, or spoken of, Hundredfold as "Laxton's." It would have been against their interests to do so, for Messrs. Carter are carrying on numerous experiments on cross-breeding Peas in their extensive experimental grounds, and when they succeed in raising a superior variety, it would be very much against their own interests to assign the merit to some other experimenter by bestowing on it his name.

Mr. Laxton unreasonably states that between 1865, when Messrs. Carter became possessed of Lis Prolific Longpod, and the present year, there has not elapsed time sufficient to raise a stock of a variety of which it was one of the parents. I use the term "unreasonably," because at the close of his remarks he acknowledges that it can be done, and such, I am informed, was the fact.

I am also informed, or, rather, I have seen Mr. Laxton's letter, in which he offered less than forty quarts of new Peas, six varieties, for £550! (Five hundred and fifty pounds!)

Two of the partners in Messrs. Carter's firm and Mr. Hurst saw the Peas last summer at Mr. Laxton's, and formed the opinion that they were not of sufficient merit to justify offering them to the public. Of the new varieties Messrs. Carter bought of Mr. Laxton in 1868 (ninety-four quarts for £250), they intend discarding the variety called "Manifold," both in its dwarf and tall form, considering it not of sufficient merit. It is only justice to Messrs. Carter to state that the other varieties they purchased will not be sent out until tested. I am glad of this being able to state authentically the high price paid by wholesale seedsmen for new superior varieties, because it will show purchasers why they have to pay so dearly for retailed quantities.—G.

### ANMOBIUM ALATUM CULTURE.

HOW pleasing at times to hear and see inquiries about those fine border plants which of late years have fallen into disuse on account of the favour accorded to the occupants of the finely-dressed parterre, yet there are a few admirers left, and what is hopeful, their numbers are increasing; so, perhaps, the neglected ones will by-and-by take up their proper position.

A neglected plant that I think is deserving of a place in all gardens and shrubbery borders is *Anmobiium alatum*. It appears to be at home in almost all situations, will bear a good share of hard usage, and will repay the cultivator. In a poor sandy soil we can have it from 1 to 2 feet in height; in moist, rich, sandy soil from 2 to 4 feet high. It is impatient of stagnant water. It begins to bloom early in summer, and its flowers continue appearing quite to the autumn. They are invaluable for cutting for bouquets, and if cut before fully expanded and carefully dried will be found an acquisition to the number of dried flowers so much in demand for winter decoration; the white and yellow, of which its blooms are composed, forming a pleasing contrast. Being kept in a cool dry

place, when brought into a warm room astonishing is the display which may be had from dried flowers, for many of them expand and, showing their colours, remind us of the sunny hours of summer in the depth of winter's gloom.

This plant may be readily increased by seeds, division, or cuttings (which I prefer) of the side shoots slipped off in autumn, the jagged parts smoothly cut with a sharp knife and put firmly into sandy soil in a shady place. They root without any further trouble.

In this neighbourhood it is quite hardy. If not secured by stakes the plants are liable to become root-withered in exposed situations. To prevent this, I find it good practice to place a few stakes round the plant, according to the growth it is expected to make, in a slanting direction from the root, running a string from stake to stake so that the branches may grow up freely among the ties, and when the plant is getting fully grown, I put a string loosely round all. Plants tied-up in the ordinary way look like a bundle, and are very unsightly.

If a portion of the early growth is cut back, it causes a second growth and prolongs the flowering season considerably. When the plants become large, and have stood for a length of time, I have seen them partly die away. I find under such circumstances it is good policy to thin the shoots and reduce the crown a little in spring.

There is another kind called *Ammobium plataginaceum*, but up to the present time it has not come under my notice in any of the trade lists. I would strongly recommend *Ammobium alatum* to the notice of those who grow plants to cut flowers from, and especially to market gardeners. A few good plants in a good soil would amply repay all who would take the trouble to acquaint themselves with it, and then possess themselves of it.—M. H., *Acklam Hall, Middlebrough-on-Tees.*

### CRANBERRIES.

Among the multitude of fruits that minister to our comfort and pleasure the Cranberry is much neglected. It is one of the most useful of the wild fruits, and with its keen but pleasant acidity, rank next to the Red Currant for ordinary purposes. For sauces, tarts, and pies it is unrivalled, and no housekeeper would think a roast turkey could be properly served without the inseparable "Cranberry sauce." But limited efforts have been made to cultivate it for the market; yet in the few instances where horticulturists have given attention to the subject, their efforts have met with ample success.

The principal supply for the market is obtained from the plant in its wild state. In Illinois, Wisconsin, and Michigan, immense tracts of marsh land exist, upon which little or nothing else is produced. The fruit is extensively gathered by Indians and sold to the local merchants, who ship it in barrels and kegs to Chicago and Milwaukee, from whence it is distributed through the whole country. On the Pacific coast, the principal supply is obtained from the country bordering on Puget Sound, where it is gathered by the Indians and sold to traders in exchange for whisky and blankets. An instance is mentioned as having occurred in 1853, where a trader, whose sole stock in trade consisted of nine barrels of whisky, got in exchange therefor a large schooner-load of Cranberries. The government officers were notified of the fact, and went in pursuit of the enterprising, but risky, merchant. Owing to the good sailing qualities of his vessel he made his escape. The value of the berries obtained in exchange for these nine barrels of whisky amounted to several thousand dollars. There is quite an extensive trade carried on between San Francisco and Oregon in this fruit. Considerable quantities are also imported from the Atlantic States, which command about 10 cents a gallon more than those of Oregon.

Much has been said about the value of the timber, fisheries, and the fur trade, having overlooked one item which is destined to figure conspicuously hereafter in the commerce of that country. This is the Cranberry trade of Kodiak. This is the principal island in the Aleutian group. Large tracts of the island are covered with the Cranberry vine, which produces fruit unsurpassed in size and flavor. The Kodiak fruit readily commands in the market from 15 to 20 cents per pound more than the Oregon. There is no good reason why this fruit, so abundant in Oregon, Washington Territory, and Alaska, should not be offered in the market for one-half the present price, and then leave a large margin of profit to the dealers. One favourable feature in the Cranberry trade is the care with which they are prepared for shipping. They are put into kegs and barrels, into which sufficient water is poured to cover the

fruit, when they are headed-up, and are then ready for transportation. In this state they will keep for months, through hot and cold weather, alike unchanged.—(*California Paper.*)

### THE ROYAL HORTICULTURAL SOCIETY'S ANNUAL GENERAL MEETING.

FEBRUARY 8TH.

THE CHAIRMAN, in opening the proceedings said, as to the past year, he did not intend to enter upon the financial question, but on the great change which had been effected in what had hitherto been known as the Tuesday meetings. Ever since he first became connected with the Society, some thirty years ago, there had been Tuesday meetings. These meetings, which take place fortnightly, are held now on Wednesdays. He had his doubts as to the success of the experiment, but they were overruled by his colleagues. The change, which was looked forward to as a sort of revolution, was effected much more quietly than revolutions usually are. He had not the least doubt that things would run on in their old groove as before this change, and the meetings would become more and more important. He should refer them to the schedules as the best guide. In reference to the future, two most important changes were in progress—one just commenced on the right and left of the arcades. The many pleasant prospects they held out of enjoyment would very greatly enhance the future of the Society. The other important thing, and this was a subject he approached with pain, was the proposed abandonment or removal of Chiswick Garden. Those who remembered all the ancient glories of Chiswick, and the many pleasant days they spent there, must be grieved indeed to think the time had come when they and Chiswick would have to part. In the first place there is the rise of London, which militates sadly against not only the rural character of the place, but the growth and welfare of the plants, which exhibit signs of the baneful influence of the London atmosphere and London smoke. There is the deficiency of funds. Unless a great garden is well kept up, it is of no good. It is painful to see the Council to have to leave it in this state, but the funds will not permit us to keep it up in the same sort of style that we keep up the garden at Kensington. The third reason, which is most important, is that the lease is approaching its termination, and we have not the power to renew it if we wished it renewed. Since the breaking up of the establishment at Chiswick is only a question of years, the sooner we look matters in the face the better. The sooner we look out for some smaller place with a purer atmosphere, so that, although it may be farther from town, it may be reached sooner than Chiswick, the better. We are placed in an enviable position, as that Chiswick it may be destroyed all in which lovers of horticulture had there taken so great delight. You speak of having a garden somewhere in the country. Where is there a place within ten miles of London where you will not find houses? I see you are making great alterations in this garden at Kensington, laying down grass where flowers formerly were. I always understood that this garden was for ladies, and that ladies were florists; can ladies enjoy the green grass? I put it to the Council whether they should not consider among themselves that a general meeting be called before anything is done. But why have we a difficulty in renewing the lease? If we had paid the amount at the end of the first term we should have been in no difficulty about the lease. I contend that the present condition of Chiswick is such, that it is far in advance of any other place you can obtain. Look at the money you have spent on houses which, if you had the intention of relinquishing Chiswick, you should have taken care not to have spent. There you go from bad to worse. I put it as a question of prudence and honour, whether you should not call a special general meeting, and submit the whole question to the Fellows, and if they say, Let Chiswick go, my voice will be only one raised against it.

THE ASSISTANT-SECRETARY then read the report of the Council, which was read.

MR. F. KOSHER moved the adoption of the report, which was seconded by Mr. BLENKINS, who said that if the relinquishment of the establishment at Chiswick contribute to the better financial condition of the Society, the present regrets may be turned into joy, and he hoped that such might be the case.

MR. GIBSON said: Do not throw overboard Chiswick, on which you have spent thousands, from which nothing has been obtained. None of the members would think of such a thing. It has been waiting year by year to hear from the Council as to what they intend to do with Chiswick. The removal of the plants from that garden would destroy all in which lovers of horticulture had there taken so great delight. You speak of having a garden somewhere in the country. Where is there a place within ten miles of London where you will not find houses? I see you are making great alterations in this garden at Kensington, laying down grass where flowers formerly were. I always understood that this garden was for ladies, and that ladies were florists; can ladies enjoy the green grass? I put it to the Council whether they should not consider among themselves that a general meeting be called before anything is done. But why have we a difficulty in renewing the lease? If we had paid the amount at the end of the first term we should have been in no difficulty about the lease. I contend that the present condition of Chiswick is such, that it is far in advance of any other place you can obtain. Look at the money you have spent on houses which, if you had the intention of relinquishing Chiswick, you should have taken care not to have spent. There you go from bad to worse. I put it as a question of prudence and honour, whether you should not call a special general meeting, and submit the whole question to the Fellows, and if they say, Let Chiswick go, my voice will be only one raised against it.

MR. ANTHUR GROTE thought that the Council contended in the proposition contained in the Report, that it was not worth while to retain Chiswick during a short period, as the next eleven years.

MR. WILSON SARNDERS: The Council have come to the resolution



about to be established on the Annexes by H.M. Commissioners for the Exhibition of 1881 (see Appendix 1.\*). The communication which has been recently issued to the Fellows will have informed them that the Council have entered into an arrangement with the Commissioners of a mutually beneficial character. A copy of the agreement with them will be found in the Appendix. These arrangements will, the Council believe, materially benefit the finances of the Society, and also secure to the Fellows personally important privileges as respects the terms on which they can obtain admission to the International Exhibitions. The Commissioners also undertake to finish the Gardens without throwing any further liability on the Society.

3. The second subject of importance relates to the working garden of the Society. For some years past the Council have seen the necessity of changing their experimental garden from Chiswick to some locality better suited for their operations; for the results of the cultivation there, owing to its low, cold, damp position, combined with the gradual increase of smoke and houses around it, are yearly becoming less satisfactory, whilst the expenditure entailed by the establishment is constantly increased. Moreover, the termination of the lease will of itself necessitate a change in a few years. A garden conveniently situated in pure air and with good soil would enable the Council to carry out their horticultural operations with increased efficiency and at reduced cost. An obstacle which would have hampered them in carrying out this change—viz., the expense of establishing a new garden, has been (as they believe) opportunely removed by a valuable bequest to the Society by their late Fellow Mr. Alfred Davis, which will enable the Council to effect this improvement, and at the same time preserve the memory of the bequest, and of Mr. Davis's interest in the Society in a permanent shape.

4. As regards the financial condition of the Society, the Council have to report that there has been a slight increase in the number of Fellows, and the number on the books is the largest on record. The actual amount of subscriptions received for 1869 was £7193; in 1868 it was £7113; the number of transferable tickets taken out has considerably decreased since the present monetary depression commenced. The receipts from the Exhibitions of the Society were about the same as in 1868, with which those last year are fairly comparable, the number of shows and amount of money offered in prizes being similar in the two cases. The Promenades have been better attended and more productive than in the preceding year.

5. The country shows having, both at Bury and Leicester, proved to some extent remunerative, the Council anticipated that there might have been a considerable surplus from the Exhibition at so large a place as Manchester. In this they have been disappointed. The returns will do no more than meet the expenses. Notwithstanding this, they regard the institution of these country shows with satisfaction. In every instance they have been productive of benefit to horticulture, have spread knowledge among the people, and indirectly benefited the Society.

6. In their report the Council mentioned that they were taking measures to secure the more rapid publication of the proceedings of their different Committees. This they carried into execution, but as the expense for distributing them to all the Fellows by post would be too great, it was intimated that those who might desire it would receive them on application to the Assistant Secretary. Accordingly at each successive Tuesday meeting, copies of the proceedings of the previous meetings have been distributed to those Fellows who applied for them. Those who have not availed themselves of this privilege will get the back copies on application to the office.

7. The success of the fortnightly Fruit and Floral Meetings, hitherto held on the Tuesday afternoon, but now held on Wednesday, has been so marked, and the attendance at them so numerous, that the Council have been induced to make an important change in the Society's working as respects its exhibitions generally. These meetings have been chiefly made successful by the zealous co-operation of the Fellows, but especially of the exhibitors, who have not only brought to them the new and rare productions for which they desired to have the Society's certificate of approval, but large and beautiful collections of flowers already well established in the exhibition of horticulturists, and have thus added such attractions to the meetings as really to convert them into important floral exhibitions. Seeing that they have practically assumed this position, the Council have thought it best to combine the general exhibitions with them. This arrangement, while commending itself to the exhibitors by reducing the total number of floral meetings and exhibitions, will have the effect of adding to the numbers of those which specially attract the great body of the Fellows and the public. By distributing the prizes also over a greater number of days, the exhibitions will be rendered more independent of the weather, and less perilous to the Society.

8. The Fruit and Floral Committees have worked thoroughly well, and their decisions continue to be accepted by the country with confidence. The Council have under consideration a scheme for improving the mode of election to these bodies, as membership is now an office much prized by the practical horticulturists.

9. The Council also refer, with the greatest satisfaction, to the working of the Scientific Committee. This Committee, at the date of the last annual Report to the Fellows, had made a good commencement of their labours. The large attendance of its members at every meet-

ing has now given ample proof that the subjects brought before the Society afford matter of sufficient interest to engage the thoughts and attention of the leaders of the different branches of natural science.

10. Another effort to promote the advance of horticulture on which the Council look with satisfaction, is their collection of insects injurious to vegetation, now forming and housed in the South Kensington Museum. Some of the Fellows have kindly aided their efforts to procure materials for this collection, and as many have it in their power to contribute, the Council trust that ere long the blanks existing in the case already put up may be filled, and a large accession of material procured. This is a matter in which every one possessed of a field or garden has a personal interest.

11. The Lindley Library has not received many accessions during the past year, which is probably due to its not yet being deposited in a sufficiently accessible place. The Council expect that as soon as the Royal Albert Hall is completed this deficiency will be supplied, and in the meantime remind the Fellows of the Library, and again invite contributions.

12. A new Orchid-house has been erected for the reception of a fine collection of cool Orchids which has been presented to the Society by Mr. Bateman. The Council feel that the thanks of the Society are due to Mr. Bateman, not only for this handsome donation, but for the great personal trouble and labour he voluntarily undertakes for the instruction and entertainment of the Fellows at their fortnightly meetings.

13. The system of examination for young gardeners established by the Society, and carried out partly with the machinery of the Society of Arts, continues to work well.

14. It will be seen from the annexed Report of the Chiswick Board of Directors, that unusually large collections of seeds, plants, and cuttings have been distributed among the Fellows during the past and present years, and the ballot lists will show that the plants have been new and valuable; some of these were produced at Chiswick. They have also been able to supply some foreign and colonial establishments with collections of cuttings of fruit trees; the Horticultural Society of Victoria, and of Port Elizabeth, Natal, in particular, have especially desired their thanks to be conveyed to the Society for donations which they regard as important.

15. It will be seen, therefore, that amidst the varied objects to which the Council have had to give their attention, they have not overlooked the importance of horticultural inter-communication with the colonies. The annexed prospectus (Appendix 1), will show that they have also taken the necessary steps to secure the advantage of international competition for horticulture at the approaching Annual Exhibition of Art and Industry.

TERMS OF ARRANGEMENT BETWEEN HER MAJESTY'S COMMISSIONERS FOR IRELAND AND THE ROYAL HORTICULTURAL SOCIETY, CONSEQUENT UPON THE ANNUAL INTERNATIONAL EXHIBITION TO BE HELD AT SOUTH KENSINGTON IN 1871 AND FOLLOWING YEARS:—

The Society to give to the Commissioners the permission to admit to the Gardens all visitors to the proposed International Exhibitions; and the use of the Northern Arcades from the 1st April to 31st October, the Commissioners providing in lieu thereof, for the use of the Society, a covered communication on the roofs of these structures between the Orchard house entrance and the Conservatory.

All receipts for admission to the Gardens or International Exhibitions from 1st May to 30th September taken at the entrances to be the property of the Commissioners, and out of such receipts the Commissioners to pay to the Society 1*l.* out of each shilling so taken.

The cost of bands for the Horticultural Shows and for the Promenades during the six months of the International Exhibition to be defrayed by the Commissioners.

Fellows of the Society to have the privilege of purchasing season tickets for the International Exhibitions with a reduction of one guinea per ticket on the price charged to the public: one such season ticket to be obtainable for every 2 guineas subscription paid to the Society.

Fellows of the Society to have the privilege of purchasing tickets of admission for their friends to the Horticultural Shows and Promenades at a lower price than is charged to the public at the doors, such tickets carrying with them the privilege of admission to the whole of the International Exhibitions.

The whole proceeds of the sale of such tickets to the Fellows of the Society for the Horticultural Shows, and 1*l.* in the shilling on the tickets sold for the Promenades, to be the property of the Society.

Two days of the week, as at present, the price of admission to the Exhibitions and Gardens to the general public to be not less than 2*s.* 6*d.* For Horticultural Exhibition days the price of admission to be regulated by the Expenses Committee.

It is understood that the Commissioners will finish the arcades and make such improvements in the Gardens as may be necessary to provide increased promenade space, now so much required.

The present exclusive privilege of the use by the Fellows of such portions of the Annexes as are not required in carrying out the objects of the Commissioners are not to be interfered with.

EXTRACTS FROM THE REPORTS TO THE COUNCIL FROM THE CHISWICK BOARD OF DIRECTORS.

The Orchard-house is well filled by a large and valuable collection of Peaches, Nectarines, Apricots, and other fruit-trees, some of which

\* We shall publish this next week.

are planted in the borders and others in pots. The great bulk of these was presented by Messrs. Rivers and Son, of Sawbridgeworth; Mr. Pearson, of Chilwell, near Nottingham; Messrs. Veitch and Son, J. and C. Lee, and Osborn and Son, of London, while a large number of seedling Peaches, raised from carefully hybridised stones, were presented by the Rev. W. Kingsley, of South Kensington, and from these it is anticipated that some valuable acquisitions will be obtained.

An important alteration has been made in the Vine-border of the large Conservatory. The Vines, which were planted thickly to admit of as many varieties being proved as possible, had attained their full limit of space and become somewhat crowded. Some of these were planted inside and some outside of the house, and as those on the outside had succeeded better than the others, the inside border has been entirely done away with, and that on the outside very much enlarged by removing the walk from the top of the terrace to the bottom. By this arrangement there will be a great saving of labour, and a larger space will be available inside the house. The usual distribution of seeds, plants, and cuttings has been made, of which the following is a list:—50,000 packets of Vegetable seeds; 15,420 plants of Strawberries; 110 cuttings of Figs; 421 cuttings of Vines; 3,086 cuttings of other fruit trees.

A very successful exportation of some hundreds of cuttings of fruit trees was sent to the Horticultural Society of Victoria; and though nearly nine months elapsed between the time the cuttings were taken from the trees and the time they were grafted, a very large percentage of them grew, and some of all the varieties were secured. Another collection of upwards of 500 varieties has been sent off, and it is gratifying to know that these contributions are highly valued by the colonists.

The usual distribution of seeds and plants has received attention, a portion of the Chiswick grant being set apart for this particular object. During the past season 70,000 packets of seeds have been sent out to the Fellows, and to the Societies in union; whilst, of the more or less valuable and important plants allotted by ballot, the large number of 11,800 has been distributed.

In the ballots for the forthcoming season, the new Golden leaved Caladiums raised at Chiswick will be distributed. The Directors believe that of these a sufficient number will be obtained, not only to supply such of the Fellows as may desire to possess them, but also to afford materials for exchanges with the commercial cultivators of new plants. One or more of the new hybrid Dieffenbachias will also be distributed in the course of the season, and the Directors believe that no falling-off in this department will be experienced.

In the distributions of the present year, moreover, seeds of a considerable number of ornamental trees grown in the garden, such as species of Crataegus, Pyrus, and allied genera, have been included. About 200 sets of these seeds have been made up, and are at the disposal of the Fellows, as may apply for them in preference to the usual packets of flower and vegetable seeds annually sent out. These tree seeds the Directors recommend should be sown as soon as received.

The collection of bedding Pelargoniums had grown up to consist of the large number of 870 varieties, the number planted out last year. Of these, while many were altogether rejected, comparatively few were approved as additions to the certificated sorts of former seasons. A collection of double-flowered Pelargoniums was very successfully grown in pots under glass, for which purpose they are exceedingly well adapted. A report of the results of the examination by the Committee of both these collections will appear in the "Proceedings" of the Society.

Some experiments were instituted, though not till somewhat late in the season, in reference to the effects of certain chemical manures on the leaf-colouring of the variegated Pelargoniums, and the flower-development of the ordinary bedding kinds. Some account of these experiments has been already laid before the Scientific Committee, and will appear in the report of the "Proceedings" of that body.

A large collection of recent varieties of their comparative culture and trial during the ensuing season, it being now some years since these floral were made the subjects of floral scrutiny, with great advances have been made in the interval which has elapsed. It is hoped that these collections, together with those of the Pelargoniums and sub-tropical plants, will afford subjects of interest in the floral department during the ensuing summer and autumn.

A series of experiments on the effect of different manures on certain selected plants which usually occur in pastures, or are cultivated as objects of profit, has been diligently carried on at Chiswick during the year. It is proposed to defer till the experience of another season to defer the publication of the report till the experience of another season has enabled the sub-committee to arrive at some trustworthy results.

A valuable series of observations has been made on the effect of different stocks on grafts. The ultimate influence cannot be ascertained in the course of a few months only; but as far as the experiments so far the result has been laid before the Scientific Committee, and will be published in the "Journal."

A plot of ground has been selected in the garden, and planted with a view to carry out the experiments suggested by Mr. Andrew Murray illustrative of the comparative effects of pruning and non-pruning on

forest trees. Some time must necessarily elapse before any result can be obtained.

STATEMENT OF ACCOUNTS from 1st of January to 31st December, 1869.

RECEIPTS.		£	s.	d.
To Life Compositions.....	339	0	1	
" Admissions Fees.....	812	18	0	
" Annual Subscriptions.....	1193	10	8	
" Garden Produce and Charges.....	603	1	8	
" Daily Admissions and Promenades.....	25	19	2	
" Rent of space in Arcades.....	274	2	0	
" Exhibitions and Fairs.....	1230	1	6	
" Advertisements in Proceedings.....	44	12	0	
" Miscellaneous.....	35	0	0	
" Water.....	35	0	0	
Balance.....	10,774	16	8	
" Assets.....	1,331	18	11	
" Garden Produce, Gas but unpaid.....	12,106	15	7	
897	12	0		

EXPENDITURE.		£	s.	d.
By Balance from 1868.....	1179	5	10	
By Chiswick Garden Expenses—viz:—				
Rent, Rates, and Taxes.....	921	14	8	
Labour.....	1296	3	4	
Implement, Manure, Coke, &c.....	349	2	1	
Repairs.....	129	2	2	
Trees, Plants, and Shrubs.....	7	16	0	
Miscellaneous.....	27	3	0	
By Expenses of Management—viz:—				
Salaries.....	450	2	0	
Printing, Almanacs, and Stationary.....	0	0	0	
Journal.....	10	2	4	
Fruit and Floral Committees.....	45	12	1	
Foreign Importations.....	22	0	0	
Examination of Gardeners.....	63	0	0	
Postages.....	66	15	11	
Distribution of Seeds, Plants, and Cuttings.....	21	5	0	
Reading Room.....	28	6	3	
Horticultural Directors (including Fees for Judges, Examiners of Gardeners, &c.).....	411	0	10	
Wages.....	242	18	2	
Collection of Insects noxious to Vegetable Life.....	11	18	0	
Miscellaneous.....	53	0	13	
By Expenses of Exhibitions—viz:—				
Advertising and Posting.....	0	0	0	
Prizes and Medals.....	878	9	9	
Bands.....	433	14	0	
Police.....	5	1	8	
Labour, Judges' Fees, Luncheons, and Sundries.....	128	15	10	
Russian Exhibition and Horticultural Report.....	50	0	0	
Expenses of Permanent Exhibition.....	54	15	4	
By Kensington Garden Expense—viz:—				
Labour.....	831	19	7	
Rates, Taxes, and Insurance.....	1	04	9	11
Engineer.....	37	2	6	
Water.....	434	5	7	
Repairs.....	166	17	0	
Implement, Manure, Coals, and Coke.....	5	18	0	
Gravel.....	0	2	2	
Trees, Plants, Seeds, &c.....	200	0	0	
Superintendent's Salary.....	84	1	7	
Miscellaneous.....	2789	6	11	
Conversazione.....	181	13	0	
By International Exhibition.....	1039	0	10	
" Liabilities of 18 6 and off.....	1093	0	11	
" Liabilities on Current Account, £2,409 12 10.....	412,106	15	7	

31st January, 1870.

Audited and found correct,

JAMES NICHOLSON,  
JAMES HUDSON,  
JOHN GIBSON. } Auditors.

## THE FIG AND ITS CULTURE.—No. 1.

**MODES OF PROPAGATION.**—The increase or propagation of the Fig is very easy, and may be effected in various ways and by various means:—by offsets or suckers from the roots, by subdivision of the old stools or roots, by layers, by seed, by cuttings made in various ways, and by eyes. Particular varieties may also be increased by grafting on others, by inarching, and, lastly, by budding.

**Offsets or Suckers.**—These are young shoots from near the base or crown of the plant, which, when taken off, have

generally a small portion of root attached. These being planted or potted at once soon form plants.

**Sub-division.**—This can only be effected with old plants which have been allowed to produce many stems from the base, instead of having been confined to one. It is simply a splitting-up of the entire plant into several.

**Layering.**—This is accomplished by bending the branches of the tree down to the ground, covering them in places with a little fine soil, and making them fast with pegs, leaving the points of the shoots a few inches above the surface. The emission of roots is encouraged by making a slight cut about halfway through, or in some other way bruising the shoot, thus arresting the regular flow of sap. If care be taken to keep the surrounding soil sufficiently moist, roots will be freely emitted, and fine plants formed by the end of the season, the operation of layering being performed early in spring before vegetation commences.

**Seed.**—Seedling Figs are plants more of accident than design. I know of no instance of the raising of a good seedling Fig, although such undoubtedly must have been the case at some time, to have given us such a great variety as we now possess. I have several seedling Figs under my care, about which a tale will yet have to be told. Fig seed is not in our seedsmen's catalogues, so that it would seem to be either scarce or of no value. Plenty of good Fig seed which germinates freely is to be found in the dried Figs of commerce. A remarkable instance of this was brought to my notice by Major Clarke, who had sown some seeds in one of those chip Fig boxes, when, lo! instead of the plants intended, a magnificent crop of young Figs appeared. I do not know of any instance of the ripening of Fig seed in this country. Seedling Figs take a great many years to arrive at a fruiting state, so that on that account, excepting the remote chance of an improved variety, it is a mode of propagation not to be recommended.

**Cuttings—Eyes.**—The propagation of the Fig by means of cuttings and eyes, which are practically the same, is at once the best, the simplest, and the most practical. A greater increase may be effected by this mode than by any other, as nearly every portion of the plant may be turned to account; even some portions of the roots will produce plants.

As regards the selection and preparation of cuttings, the accompanying woodcuts show a set of prepared cuttings, cut from the shoots of an ordinary plant, the object being to show not

heel, as it is called, of the older wood. As few cuttings, however, of that sort exactly can be obtained from a plant, the other portions have to be cut up, as shown in fig. 3 (being the



Fig. 3.

point of a shoot), or into pieces containing two eyes like fig. 4,



Fig. 5.



Fig. 6.

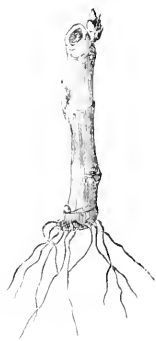


Fig. 4.

or into single eyes like fig. 5. The whole of these represent the cuttings after the formation of roots has taken place, while fig. 6 represents a cutting or eye as prepared. Stubby, short-jointed, well-ripened wood forms the best cuttings, and strikes root most readily. One-year-old wood is the best, though that of two or three years' growth will also answer, though no eyes may be visible. Long, spindling, badly-ripened shoots, such as are produced where the wood is crowded, form the worst of all cuttings, and strike with difficulty.

The best season for propagation by cuttings is the months of January and February, the cuttings being taken off while

the plants are at rest; if taken after the sap is in motion the milky juice which is produced so abundantly prevents the rooting of the cutting. The same difficulty is experienced with the young growing shoots in summer. Towards autumn, when the wood is ripening, it strikes more freely, and just previous to the fall of the leaf cuttings root most readily with much less heat than is required in spring.

The cuttings being prepared they must, if made in spring, have the assistance of a strong moist bottom heat, and a close warm atmosphere. A bottom heat of 70° at least is required. I have achieved the greatest success by placing the cuttings in some loose cocoa-nut-fibre refuse with sand, under a bell-glass or close frame on the top of a hot-water tank. Thus placed they begin to grow and produce roots, as shown in the figures, in the space of ten days, and every cutting succeeds, the roots, as will be observed, being emitted from any part of the stem. Cuttings will strike under cooler treatment than this, but only a moiety will succeed. Cuttings taken in autumn require, as just stated, less heat, and a few cuttings may, indeed, strike root in the open border. After the cuttings are rooted, like those represented in the figures, they should be potted-off in small pots in some nice light soil, and grown on in a temperature of 60° or 70°, with the assistance of a little bottom heat.

**Grafting, Inarching, and Budding** may be performed after the ordinary methods adopted for other fruit trees. They are modes, however, which require very seldom to be resorted to, unless one has a fancy to speedily produce a large plant of a



Fig. 1.



Fig. 2.

simply the best style of cutting which may be selected, but rather how a shoot, such as that represented by fig. 1, should or might be manipulated by the propagator.

The simplest form of cutting is that represented by fig. 2, being a short shoot of last season's growth taken off with a

new variety on an old one, or, having large plants, to prove new varieties. For this purpose grafting or lurching by the ordinary tongue or cleft process in spring, is most to be recommended.—A. E. C.

## GARDENS OF EAST KENT—SURRENDER-DERING.

THE SEAT OF SIR EDWARD DERING, BART.

(Concluded from page 85.)

In a house in front of the vineries there was a fine crop of Cucumbers, hanging from a trellis; the sorts were Needle Gun and Hamilton's Favorite. The method of growing the Cucumbers is worthy of notice. A stage or platform of planks, about a yard wide, extended along the centre of the house; on this, at regular distances, heaps were formed of rough lumps of peat, and a Cucumber plant was turned out in each heap. As the roots passed through the peat they were covered with a layer of pure loam, and more and more loam was gradually added till a solid bank had been formed, which was one mass of roots. Cucumbers were first cut from these plants early in May; they had given a constant supply throughout the summer, and from their appearance when I saw them they were likely to continue cropping for some time. At the last one or two top-dressings to the roots, cow dung had been substituted for the loam with the best possible effects.

A variety of plants for furnishing were growing on the front and side stages, consisting of Ferns, a few Orchids, *Dryas*, Begonias, and other useful plants. I also noticed a fine plant of the variegated *Hoya carnea*.

Some pits containing Melons constituted the remaining glass in this enclosure.

Near the vineries the neat and comfortable little bothy, partly concealed by a Virginian Creeper, is a picturesque object. One hundred and fifty feet of a south wall adjoining the bothy was planted with flourishing young Peach trees, while on the border in front of them were good crops of Lettuce, autumn-sown Onions, late Carrots, and Spinach. I may here remark that the majority of fruit trees on the walls are so old as to give but little fruit, but they are being gradually removed and young trees planted in their places.

In the store room my attention was called to the seed Potatoes, consisting principally of large quantities of Myatt's Prolific and Wheeler's Imperial, all set out in single layers on shelves placed in tiers one above another; here they will remain till removed for planting in the spring; then, as each Potato is carefully taken from its shelf and placed in a tray or flat basket, it will receive a gash with a knife, in order to induce decay, and thus afford moisture and nourishment to the young growth. At one time a small portion of each Potato was sliced off, but as this was considered to be so much vigor and nourishment wasted, the gash was substituted with the best effects. By this careful preparation of the seed most abundant crops are obtained; for example, a fair average portion was measured this season, and from three poles of ground four sacks of good Potatoes and one sack of small Potatoes were picked. The soil is stirred deeply, and the Potatoes are planted near the surface, in rows 30 inches apart. Having fine sturdy shoots when planted, they quickly make growth, and as soon as the shoots are visible the soil is stirred with hoes, and when they are a few inches high the soil between the rows is again well stirred with steel forks, the Potatoes are slightly earthed-up, and a finish is given to the whole as the labourer proceeds, so that all tramping is avoided.

Before leaving the store house I noticed an excellent form of hamper, in which cut flowers are forwarded to the family when in London. It is square, 2 feet deep, 2 feet long, and 18 inches wide; it has moveable wicker trays, which fit one above the other, and at intervals the sides of the hamper have open wickerwork for the admission of air.

In the garden next to the enclosure containing the glass houses is the very comfortable and commodious gardener's cottage. The crops of vegetables were fine and abundant. A bed of Beet, called Lee's Belvoir Castle, had very handsome dwarf foliage of a rich metallic hue. It was pointed out as likely to be useful for ribbon borders; it certainly presents a very striking appearance. A fine bed of Early Ulm Savoy, 1000 in number, and a bed of that most useful Cabbage, Little Pixie, were noticeable. To give some idea of the quantities of vegetables grown here, I may mention beds containing 2000 Brussels Sprouts plants, 1600 Cabbages, 3000 Broccoli,

and 1800 plants of Celery. Some young Plum trees on the walls had abundant crops. High culture, order, and neatness prevailed here as well as in every other department.

In the next, or nursery garden, so called from part of it being used as a nursery for forest trees, is the orchard house, a fine lean-to, 160 feet long and 9 feet wide, without any means of obtaining artificial heat. The trees, consisting of varieties of Peach, and Nectarines, were trained to the back wall. They were in splendid health, the foliage being very conspicuous from its very dark green hue; but in common with most other unheated houses this season, this fine collection of trees has been almost devoid of fruit, only three dozen having been matured. The cause of this failure, in Mr. Sage's opinion, is owing to the very low temperature and damp atmosphere which prevailed when the trees were in bloom; if this opinion be wrong, it is certain that not one of the reasons assigned for the failure by Mr. Birdant, at page 116 of vol. xvii., is at all applicable to this case, for here the trees are young and in full vigour; they are neither crowded nor shaded, as there is no obstruction between them and the light; the situation is by no means damp; the ventilation is thorough; and the roots are well in hand, as the entire border rests on hard concrete. Some dwarf Fig bushes in pots were cropping well; the sorts were White Ischia, White Marcelline, Brown Turkey, and Early Violet, a very useful prolific kind, producing three crops every season. A fine crop of Orange-fall and Sims' Mammoth Tomatoes was growing on plants in pots. Sims' Mammoth is a good new kind, preferable to most others from the handsome shape of its large fruit, which are quite free of those furrows in the sides so common to most of the other large kinds. Some pots, too, of the new Currant Tomato (*Solanum racemigerum*) and yellow Plum Tomato were very pretty and attractive.

An extensive collection of Pears is grown on the walls of this garden. I particularly noticed fine crops of Jersey-Gratioli and Don Chretien.

Surrender-Dering is in the parish of Pluckley, and is six miles from Ashford.—EDWARD LUCKHURST, *Egerton House, Garden, Kent.*

## GRAPES ALL THE YEAR.

I once told my gardener that I had heard that at some place a bunch of Grapes could be cut every day in the year, and asked him if he thought he could manage to do so for me. He shook his head and replied that it may be possible, but not very practicable; that men like Mr. Thomson, at Dalkeith, may do it, but, &c. Now since I have heard that others do it, I am ambitious of doing the same, and will now give you a description of what houses I have, and what I intend to build, to have my set of vineries complete, and then beg you to advise me as to whether I am right, or whether I ought to act in any different way to accomplish my object.

No. 1 *Vinery (Early)*.—This house is 25 feet long, by 10 feet wide; the border wholly inside; heated by four 4-inch pipes; a lean-to, with a warm aspect, built of iron, glazed without putty by a Barry St. Edmunds man, very light, as there is no obstruction from wooden rafters. I thought to make this my earliest vinery, as it is so narrow and warmly situated. It is planted with ten Vines—viz., five Black Hamburghs and five Buckland Sweetwater.

Would you recommend any alteration in the varieties?

You cannot do better.—Ems.

No. 2 *Vinery (Second Early)*.—This house is just finished, and not yet planted. It is a very nice light house, 36 feet long, by 16 feet, with a 10-feet inside border, with provision for the Vines' roots to run outside after the border is filled inside. Aspect S.E., high roof, with "lantern" ridge. Pipes not yet fixed. Query, should I put in four 4-inch pipes or six? I propose to plant this house in March with fourteen Vines, say eight Black Hamburgh, two Gros Colman, two Buckland Sweetwater, two Mill Hill Hamburgh.

Take out Gros Colman, as that is a very late hanging variety, and requires the heat of the Muscats. You might put it in No. 4 if you intend to keep up a good heat there. Instead of Gros Colman take Trentham Black or Black Prince.—Ems.]

No. 3 *Muscat House*.—This house is intended to range with No. 2, and would be just like it, but only 25 feet long. I propose having the border wholly inside, and the whole size of the house, and I thought six 4-inch pipes would do, but am not certain. I hardly know what Vines to plant in this house, but thought of three Muscat of Alexandria, one Bowed Muscat, two Mrs. Pince's Black Muscat, two other good varieties of Muscat, one the largest Black Grape, one the largest white. The last two I wish to grow for size only; I am not certain of the names, I think Bauberosa and Syrian. I saw an account in a Scotch newspaper of a bunch exhibited at Edinburgh.

17 lbs.; but can hardly believe it. Am I right in placing these in the Muscat house?

[This will be improved by the addition of Madresfield Court, and for the "largest black" you cannot do better than choose Gros Guillaume (Barbarossa); there is no larger white than Muscat of Alexandria, but if you do not want it a Muscat, the Alexandrian Claret or Syrian will do.—Eds.]

No. 4 *Vinery, Lady Downe's House*.—Here exactly the same as No. 3; say four 4-inch pipes; three Black Alicante, two Lady Downe's, two White Lady Downe's, three other kinds suitable for this house.

[You may have either Gros Gelman, as previously recommended, or West's St. Peter's.—Eds.]

No. 5, *Orchard House (no hot)*.—This is a very fine house, 100 feet long, by 30 feet wide, span roof, built by Cranston; very light and airy. I have forty-two Vines planted in it; twenty-six up the rafters, eight in the centre bed, to be trained along the apex of the roof, and eight over two wire arches inside each entrance door. Varieties.—Black Hamburgh, White Sweetwater, Tretham Black, Royal Muscadine, and I hope to add two Esperian. Of course, the question I really ask you is how best to establish a complete set of vineries. I think the answer will be interesting.—J. D.

[The common mode of having a succession of Grapes economically, is to begin forcing—say in November, and then have a house in which late kinds shall hang until March and even April, but even then leaving a month or six weeks in which Grapes will be scarce. Even with the very earliest forcing when new Grapes can be had from the beginning to the end of January, there will be a time when there will be both old Grapes and new Grapes at command, but the new Grapes will keep up a succession until the second house comes in, in May or earlier. As you are not yet in a position to have a regular succession owing to the condition of your houses, we would pave the way for your object by forcing your first vinery, if you have not commenced, at once, and by having the wood ripened early, and starting it next year in December or at the end of November. Then in the third season as your other houses would be getting filled, you would be in a position to obtain Grapes early and in regular succession.]

The chief difficulty will be with this earliest crop of the year. You are quite right in having all the Vines planted in an inside border, but it would also be well to have the power, by pipes or a tank, to give a moist heat in the soil of that border when necessary. Managed as suggested, you will be able to start your Vines next season—say in December, the fruit may be cut in June, and the wood well-ripened by the end of the month. As soon as the fruit is cut and the wood well-hardened, keep the house as cool as possible, and allow the soil to become somewhat dry without cracking so as to encourage a sort of rest period in the Vines. At first laterals may be allowed to grow to promote root action. These should be shortened and thinned out gradually, and finally removed by the end of July. In the first or second week of August the Vines should be pruned and dressed, and in about a week afterwards the borders should be watered, and the atmosphere of the house kept rather moist. This will encourage the Vines to break kindly, and the Grapes will pass their initiatory stages without much help from artificial heat, though on cold days and nights it must not be withheld. By the above mode the Vines make progress in the five months of autumn, instead of having so much to contend with in forcing early in winter. There would be heat enough in the soil when the house was shut up, and if bottom heat was at command it would scarcely be needed before the middle of October. By something of this mode Mr. W. Thomson and others have cut new Grapes on the 1st of January. If the Vines are properly attended to, the wood ripened early, and rested in summer, they may be pruned early in autumn for some time; in fact, when gradually injured to the system it will become like a natural habit to break thus early. The matter is of so much importance that we shall be glad to receive more detailed and particular information from those who have adopted the above system, or one analogous, and successfully. We do not see anything else worthy of especial remark except this, that instead of five Buckland Sweetwater, we would have one or two of the old Dutch Sweetwater, and one of the White Frontignan, as it ripens early and is fine-flavoured, and we would not object to one Royal Muscadine. The heating would be ample for top heat.

For the second vinery, which is so much wider and loftier in the glass roof, six pipes at least will be necessary, as these Vines will need the most heat when we may expect the weather to be coldest. The wood should be early ripened, and pruned

in November, and forcing may commence at the end of November or the beginning of December, with no underneath heating of the borders, the outside border should be protected from cold and wet by the middle of October. To give the Vines rest they would be better if the roots were kept rather dry after August.

As regards No. 3, the Muscat house, if you set this going about the end of February, or middle of March, then four pipes would do; but if you commenced earlier—say on the 1st of January, or earlier, then six pipes will be required. In resting and starting there will be no difficulty. The outside border should be protected. For a heavy-bunched black and white Grape, you cannot well do better than have the Barbarossa and the Syrian. Speechley cut a bunch of the latter 20 lbs. in weight, so it is reported. The White Nice has been cut above 15 lbs. in weight. The qualities of the Barbarossa, and the Syrian, are greatly improved in the temperature of a Muscat house.

No. 4, Lady Downe's, or late house. This we should keep cool, and even shaded a little in spring, to prevent the Vines from breaking until as late as possible. If we had fruit hanging very late, we would at the beginning of March, or earlier, disband all the wood not wanted, and which owing to the Grapes could not be cut, and then the long hanging of the Grapes will make little difference to the breaking. The needless shoots may be removed when the Vines are in leaf. Of course, but for the fruit hanging late, it would be better to prune in the regular way some time before the buds began to swell. This vinery will require but little artificial heat to ripen the Grapes, but it will need a little fire all the winter to exclude frost and damp, and great care will have to be taken to prevent dust on the bunches. We presume you mean Kempsey's Alicante.—R. F.]

## HOTBEDS.

I HAVE several times alluded to a simple mode of making hotbeds with little or no previous preparation of the fresh dung, provided there are heated tree leaves for mixing and surfacing, and not quite half-decayed old hotbed dung for surfacing. It requires a little experience and art to make a lasting bed out of such materials, but there is a good heat still in some of the beds made up last February and March, and a quantity of material to set aside for fresh surfacing and mixing.

What rather surprised and a little disappointed me was this, that beds made up in April, and some in May in a similar way, were more decayed, and had less heat remaining in them, consequently less material fit for future use in mixing, than those beds which were much older. I think I can tell the reason, and it might then this simple matter becomes of importance, so far as keeping up a continuous heat from fermenting materials is concerned. The continuous heat will much depend on the size of the bed, and still more on the condition of a good part of the materials requiring a long time to decompose them and until then always giving off heat, as the result of a slow fermentation. These beds were all for frames, and therefore in this respect were treated exactly alike, with the exception that the earlier beds had each a rough spot in front of the frames to take away the water that fell on the sashes, and the later ones had no such advantage. The rains dropping down on the front of the beds soaked into the beds themselves, and hastened decomposition too much. The simplest spot we have had is made of two slips of wood, say half an inch thick, and from 2½ to 3 inches wide, bevelled, and joined with small nails at the sides, so as to resemble the letter V. A little pitch, tar, or thick paint run along the angle, makes them waterproof. I have often been satisfied with running some clay and water along before the boards swelled sufficiently to carry off the water well. Something similar is required to take the drip from such a spot fully a yard from the bed. By such simple means amateurs may keep a more lasting regular heat in their beds, and will find that the front of the bed will have as regular a heat as the back of the bed.

As corroborative of the above I may mention that wishing lately to clear out a deep earth pit, which, after yielding a crop of early Potatoes, had had the earth removed, the bed turned over, and fresh dung mingled with it, and covered with soil again for other crops last May, I found the dung and leaves beneath the soil quite unfit to be taken out as manure, and only requiring to be turned, shaken,—thus having air admitted to it—and a little fresh litter and a few leaves added, to heat again and be as serviceable as ever. In this case the old

sashes, without rafters or anything of the sort, that covered the earth pit extended over its front on to steep sloping gravel, and thus no rain entered to hasten decomposition. With the exception of a few tree leaves, the chief material added in May was a little grass and long dung from the stables. Many places, even then, were comfortably warm. In a few days the bed will be warm enough for the purpose for which I want it, and will most likely be used for some temporary crop, and then come in for a late crop of Potatoes under glass when it has sunk enough to be sufficiently consolidated. I wish now, though the wish is vain, that more tree leaves had been collected before the frost came, as I have used up all I have, and the ground is too hard to permit of raking more.

I would soon, if I could, find a substitute for the leaves in clearing off the withered grass in the park. Nothing is better for a mild, lasting, genial heat. There is no use in wasting it much to sweeten it. Many years ago I dipped into it largely, being encouraged to cut it rather high with a scythe early in the morning and bring it home. I never had better, more lasting hotbeds. I can recollect gathering fine Melons in April with such help under shallow frames. I have scarcely been able to equal this when I had hot water in pits instead.

Notwithstanding the attendant litter of dung beds and frames, I personally never wish to be altogether without them, as when that day came I fear that there would be a considerable falling off in the kitchen and flower gardens, and there would be some ten or more crops crying out for manure, and manure could only be obtained for one or two.

Though I can quite sympathise with the feelings of a late correspondent in his dislike to all littery protection, as far as neatness is concerned, it must not be forgotten that when much is done it is after all most economical at first, and comes into use as manure at last, for already we have had frosts that it would have taken triple mats, or more if thin, to keep out, and other coverings, though excellent for going against glass, would yet require to be doubled or trebled in extreme cases when no heat was given. Where expense is no object, there can be no question as respects neatness. So far as that goes, double sashes would also be a great security in cold winters, more especially if the air between were enclosed and not moving.

—R. F.

#### NOTES AND GLEANINGS.

WE are authorised to state that the Chief Commissioner of Works has no intention of abolishing the GARDENING in the PUBLIC PARKS, and that all rumours to the contrary are unfounded. We need only say we are glad to hear it.

#### WORK FOR THE WEEK.

##### KITCHEN GARDEN.

CONTINUE trenching and otherwise preparing the ground for receiving spring crops. Make plantations of Cabbages that were pricked out in beds in autumn. Sow a bed of *Brussels Sprouts* for early planting; this is a most useful vegetable, and may be had six months in the year. Sow also a pan of *Celery* for early use. Pot *Cauliflower* plants which have stood in cold pits or under hand-glasses; for this purpose use a light, sharp soil, as the object is to cause the production of an abundance of young healthy roots ready to feed the plants when finally planted out, as it is well known that plants make more roots in poor than in rich soil. Continue to sow succession crops of *Peas* and *Beans*, and prepare ground for the principal crop of *Onions*. Look over seed *Potatoes*, and where space can be obtained, lay them out thinly on shelves, or the dry floor of a shed, where they will make strong, healthy buds, that will contrast favourably with the weak straw-like stems they emit when allowed to lie in heaps. Sow successional crops of *Radishes* and *Lettuces*, and *Spinach* between the rows of *Peas*.

##### FRUIT GARDEN.

Where nets or hunting cannot be procured for protecting the blossom of Peach and Apricot trees, suspend from the top of the wall to the bottom of the trees, a number of straw or hay ropes, made with a few projecting loose straws; dry fern, or spruce branches may be nailed over the branches of the trees with advantage. Continue pruning and nailing as before directed.

##### FLOWER GARDEN.

Continue to make the necessary preparations for clumps or masses, by sweetening or renewing the soil. Plant out biennials in masses, where requisite, in borders; the arrangement

of perennials had better stand over until they begin to bud in March. Lose no time in finishing the planting of trees and shrubs. If severe weather occurs, means must be adopted to protect Tulips, Auriculas, &c. It must, however, be perfectly understood, that I do not advise smothering them. Air must be given to plants in frames whenever an opportunity occurs. Should the sun shine brightly after a severe frost, keep the mats and coverings on, at the same time tilting the lights. It will be requisite to put small quantities of fresh manure under the tiles in Auricula frames, the tiles being raised from the ground at the corners by small pebbles; on these the pots may be placed, so that no room may be lost by these most effective slug traps. As prevention is better than cure, I would advise amateurs to clear their frames of these vermin by this simple plan. At this season mice are very apt to be mischievous among Polyanthes kept in frames, by eating the hearts of the plants; when detected a small quantity of phosphoric poison will prove an effectual remedy. When the weather is sufficiently fine, lose no time in planting Ranunculuses. These beautiful flowers delight in a cool subsoil; they have been grown in splendid style on a layer of fresh cow manure placed about 18 inches below the roots, the bed being filled up with maiden turfy loam and sand. Seed may now be sown in pans or boxes, the compost, decayed leaves and sand, having been well watered the night before; on this the seed may be scattered somewhat thickly, pressing it rather gently on the surface; cover it very slightly, and place over the surface fresh moss, which is gradually removed as the seeds emit roots. It will soon be time to put Carnations and Picotees in their blooming pots. If a proper quantity of compost is not prepared, lose no time in mixing it, at the same time keeping a vigilant look-out for all injurious insects. Do not let a frosty day pass without giving it a turn over, the trouble will be amply repaid by the excellent state of the soil. Continue to put *Dahlia* tubers into heat.

##### GREENHOUSE AND CONSERVATORY.

Still pursue steadily the directions with regard to temperature, &c., laid down previously. Slight advances in heat may be made on bright days, but if cloudy skies intervene, revert immediately to decreased temperature, and let humidity proceed in the same ratio. Climbers may be looked over in the conservatory, and if an early display of their beauties is required, some of the irregular wood may be pruned away forthwith. Passifloras and others may receive this treatment, but permanent plants, as *Acacias*, &c., will, of course, point out of themselves an exception. Those who are growers of the families of *Eupacis*, *Correa*, *Leschenaultia*, and *Polygala*, will soon enjoy a treat in these charming tribes. Frequent introductions, and frequent removals, are the order of the day here. *Camellias* require at this time abundance of water. Keep a sharp eye to *Ericas*, *Eupacis*, &c., that are potbound. Some of these will require liberal watering. The winter has been so favourable for greenhouse plants, rendering little fuel necessary, that those who have been impressed with the importance of avoiding strong fires in plant houses, will find their account in the superior health of their stock. Increase warmth on sunny afternoons for a couple of hours, but let the thermometer sink again at night to 45° or 50°. See that all insects are eradicated before the growing season begins, and clean or sponge away all fungus or dirt of any kind from the leaves of plants. Remember that all extraneous matter is very prejudicial to the welfare of plants; thorough cleanliness holds equally good as regards plants and animals. Keep all stock neatly tied up, and dress climbers. Tropaeolums growing should be constantly attended to. Shift some forward *Pelargoniums* into their final pots, and stake them out if intended for specimens of high cultivation; remove weak or crowded shoots, and secure a thorough circulation of air without draught. Apply water freely to those plants which have been potted long enough for the roots to reach the sides of the pots, and as soon as the bloom shows begin to apply diluted clear tepid manure water, which will maintain health and beauty, and produce flowers of fine shape and colour.

##### STOVE.

Let all increase of heat take place on bright days, chiefly early in the afternoon, and then accompanied with a somewhat moist air. Have a number of *Gloxinias* repotted and placed in bottom heat, using for compost leaf soil, loam, charcoal, and sand, the whole in a fibrous state. Stove climbers on trellises, in pots or tubs, that require to be shifted soon, should be cut in previously to fine fresh buds, preparatory to disrooting or shifting. Attend to the shifting of the *Amaryllis* tribe where

requisite. As soon as they show signs of growth, let them be introduced to this structure, and give a trifling amount of water, increasing it gradually as the leaves unfold. Select some of the best young plants of *Euphorbia*, *Rondeletia*, *Brusellia*, *Jatropha pandurifolia*, &c., and place them on bottom heat. Cut back *Poinsettia pulcherrima*, *Eranthemum bicolor*, *E. pulchellum*, *Justicia peruviana*, and *J. coccinea*; shake out and report in open fibrous loam, half decayed, with some sand and charcoal, the bulbs of *Gloriosa superba*, and place them in bottom heat. No water should be applied to the bulbs until they have commenced their growth. This, when well cultivated, is a beautiful and very curious plant. Some of the large specimens of Orchids, such as *Stanhopea*, *Gongoras*, and *Catasetum*, which require shifting, and then have become very dry, had better be immersed in tepid water for an hour or two, a day or two previous to shifting.

#### FORCING FITS.

Keep the bottom heat to 80°, and increase the atmospheric heat to 80°, likewise, for a couple of hours on sunny afternoons, with occasionally a slight syringing at such periods. If the pit has a hot-water pipe or flue, great care must be taken to insure moisture in the atmosphere. If there are two pipes, a flow and return, as is generally the case, the bottom pipe should rest in a cemented trough deep enough to enable the water to cover the pipe when necessary, and from 6 to 8 inches wide. Water, less or more, should be at all times kept in the trough, at least after this period.

#### COLD PITS AND FRAMES.

Keep stock in pits and frames well ventilated whenever the weather will permit, and the surface soil of the pots frequently stirred. Dust with sulphur *Verbenas* and similar plants attacked with mildew. Be particular in keeping the interior of pits containing plants of the description just mentioned as dry as possible.—W. KEANE.

### DOINGS OF THE LAST WEEK.

OUR general work has been to a great extent a continuation of that of previous weeks. In the pleasure grounds and kitchen gardens we kept turning and turning again soil that had been thrown up while the frost lasted; and since the frost has again left us, the frequent rains have prevented us doing much on our heavy ground. Potting, cutting-making, and clearing out and washing different houses have occupied a considerable portion of our time this week. Cutting down some *Laurels* and some fresh turfing had to be done according to the weather. *Laurels* that had been planted chiefly for shelter have been cut down, so as to be kept low for undergrowth, as other trees now advancing will afford considerable protection, and the *Laurels* will not prevent a good view being obtained over them. Large breadths of the common *Laurel*, when forming one low level mass, look well in summer and winter. The only drawback to such somewhat low level verdure is the frequent cutting to which the plants must be subjected. This is a matter of time and labour where the levels or banks are of great extent, but on the whole the labour will scarcely be so much as with short grass well kept. With neat specimens of ornamental trees far enough apart to each to attain its full size and leave enough room round it to show off its individual beauty, a thick undergrowth of the common *Laurel*, say 18 inches in height, has a fine appearance at all times, and especially in winter, as the green will ever be rich, when grass would often be brownish in summer and winter. We can see some places where *Laurels* so treated would be beautiful, but they should never be so managed unless where labour can be afforded to cut them properly, and so as to leave few marks of the cuts to offend the eye.

This leads us to state how important it is in planting specimens to give them enough of room. We speak feelingly on this subject, because we have ourselves often greatly erred in this respect. When you put out a tree, some 18 or 24 inches in height, it seems such a difficult matter to keep in view at the same time that the period will come when that tree would require for itself 40 or 50 feet in diameter; hence intended specimens are placed too close together, and frequently several are spoiled, because the owner feels it such a difficult matter to decide which to sacrifice for the benefit of others.

Another error of an opposite character is very common, and that, too, when early results are wanted—namely, planting trees with few or no temporary plants between them. This will generally secure fine well-formed specimens ultimately, but such specimens will often grow very slowly, and be stunted

for years, and in some cases hardly ever become vigorous. Young trees, like young children, thrive best in company, and grow faster in the warm nursery than on the exposed down or fell. Hence, to obtain good specimens early in a new place, it is no bad plan to resort to something like the shrubby thick-planting system, but removing everything in time that would interfere with the good specimens. Some of the finest Oak woods we have seen have been drawn up with clean lofty boles by the help of nursing plants taken away in time, and when they were usual. We have frequently seen Oaks that have been planted very thickly in parks thirty years or more, and spaces planted at the same time in clumps and woods, the clumps filled up, say 4 feet apart, with *Larches*, *Spruces*, &c., and now when all the nurses are removed, and the Oaks stand out singly, these Oaks in height, elegance, and luxuriance far exceed those planted singly and thinly. Planting thickly is, therefore, not only the best mode for the tree raiser, but when accompanied in the earliest period "thin quickly," it is the best for securing at the earliest period good timber. As respects the two cases, planting in the open and planting in a thicket at the same time, the trees now standing in the latter case would by a stranger be considered at once at about double the age of those in the former, whilst the thinnings of the timber world of themselves have yielded on the whole a pretty fair return for the land.

There is a great excuse for gentlemen planting thinly at first, as the second part of the old adage, "thin quickly," has so frequently been neglected. We have seen an infinity of ruinous results, whether planting has been done for cover, shelter, or for timber. When this thinning is neglected, the object in planting is entirely frustrated. For cover, what can be better than a nice *Spruce*, with its lower branches the longest, healthiest, and sweeping the ground? What can be its use, with its lower branches dead from want of light and air? It is good for an Oak to be drawn up to make headway at first; but how feeble must its constitution become, when it is over-nursed from air and light. The very thinning of such neglected woods requires caution, as with so many trees in a limited space, the root-room for each is small, and everything like free openings to the winds would very likely be followed by the trees being uprooted. Dilatoriness in thinning is often attended with another evil, arising from the small space of ground for each tree, so that even from want of nourishment, after a thinning is given, the trees left never get out of a stunted state. We have no doubt that rottenness at the heart of *Spruce*, &c., and piping at the heart of *Larch*, are often owing to a want of sufficient nourishment, from thinning being so long delayed, and the ground being thus called upon to do more than it was able to accomplish.

As the planting season will soon be over, and spring planting this season will have to be resorted to, where, on account of dryness it could not be done during the past autumn, when trees of some size are moved from a warm to an exposed place, it will greatly help them if a straw or hayband be wound obliquely round the stem and principal branches. These will defend the fine bark until the tree becomes used to the position.

We have found it a difficult time for *fresh levelling and tarring*. Good turfing can hardly be done in wet weather. If we do not think, as we ought to do, of the men's backs and knees, it is next to impossible to level the ground and pack the turf properly. Rain after the turf is down is a very different affair. There is little danger of turf, that is laid down in the course of this month, drying and giving trouble afterwards. When such turfing is done near the garden, a little fine soil on the surface beneath the turf is a great help to levelling. Every space should be properly levelled before the turf is laid down. For large jobs, we use several cords, and the level is made to them. Provided the level is well made, and the earth beneath of the same hardness, you can scarcely avoid leaving the desired level behind you, if the turf-cutter take up the turf of uniform depth. When you have to use various thicknesses of turf, it requires art to pack the turf well. When uniform in thickness little packing is required. When laid, and well swept, the turf is first beaten and then quickly and finally more slowly, rolled; it rarely gives any more trouble. We have turfed every month of the year, but it is best to do it from November to March. For large jobs leather knee-caps are a great help to the turf-layer. We know of no better concealer of defects, and, therefore, no better exhibition of hypocrisy in its way, than nice turf, which would pass muster for the scythe, and yet give trouble to the mowing machine. A stranger might pass along such turf, and never perceive heights, hollows,

or inequalities; but strip off that turf of equal thickness, and a person must be blind not to perceive inequalities as to level then. Outside and inside are too often very different.—R. F.

### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending February 8th.

DATE.	BAROMETRICAL.	THERMOMETER.				Wind.	Rain.
		Max.	Min.	Max.	Min.	1 ft.	2 ft.
Wed. ... 2	29.598	29.594	45	41	40	87	S. .14
Thurs. ... 3	29.682	29.621	48	35	43	38	S. .00
Fri. ... 4	29.621	29.537	48	41	43	39	S. .12
Sat. ... 5	29.872	29.618	50	38	44	49	S. .12
Sun. ... 6	29.897	29.672	48	39	41	49	S. .34
Mon. ... 7	29.696	29.444	45	33	44	40	S.E. .12
Tues. ... 8	29.615	29.432	48	28	44	40	S.E. .16
Mean.	29.663	29.554	47.43	35.36	43.11	39.14	.. 1.00

- 1.—Drizzling rain; slight rain; drizzling rain.
- 2.—Fine, very damp; densely overcast; densely overcast.
- 3.—Cloudy but fine; densely overcast; dense clouds.
- 4.—Rain; fine but cloudy; densely overcast.
- 5.—Cloudy but fine; densely overcast; rain.
- 6.—Rain; showery; heavy rain, clear.
- 7.—Densely overcast; showery; rain.

### TRADE CATALOGUES RECEIVED.

Hooper & Co., Central Avenue, Covent Garden Market, London, W.C.—General Catalogue for 1870.  
W. Hooper, New Wandsworth, London, S.W.—Seed List.  
G. J. Child, 49, Darley Street, Bradford, and Bradford Nurseries, Shipley.—General Seed Catalogue and Garden Guide.

### TO CORRESPONDENTS.

\* \* \* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the Journal of Horticulture, &c.*, 171, Fleet Street, London, E.C.

N.B.—Many questions must remain unanswered until next week.

**BOOKS (A. Stewart).**—There is no book exclusively on the kitchen garden of the price you mention. "Kitchen Gardening" which you can have for six postage stamps, and Keane's "Outdoor Gardening" for twenty stamps, contain the chief information required. (*Reader*).—For general and compressed information on all departments of gardening, give the lad "The Cottage Gardeners' Dictionary." You can have it post free if you enclose 7s. 2d. in postage stamps with your address. (*A Young Gardener*).—Mr. Errington and Mr. G. W. Johnson compiled a book, the Grape Vine and its culture. It is in two small volumes, but is out of print. (*J. Turner*).—Brabant's "Modern Peach-Fruiter." You can have it free from our office if you enclose forty-four postage stamps with your address.

**HYDROBOTICAL TABLES (A. Reader).**—Write to Messrs. Negretti and Zambra, Holborn Viaduct, London. Your plant is *Ruscus Hypoglossum*. (*Correspondent*).—*Althea rosea* is a common weed. Our Garden Market salesman. The prices published are wholesale and retail.

**PARANEPHELES ONITOPUS (S. A. K.).**—It is not purchasable, being only in the garden of Mr. Wilson Saunders.

**HEATING BY GAS (Joseph March).**—We can give no opinion as to warming your conservatory with hot water heated by gas, as you do not mention the size of the conservatory. There is no doubt that it could be done, but if the conservatory is large the consumption of gas would be great.

**STRIKING ICE (E. L.).**—No bricklayer unversed to such structures could erect an ice-house on the old system without working plans. You had better adopt Mr. Earley's plan which we published last week.

**GRAPE (F. W.).**—The Kompass Althea and the true Althea are quite distinct, the former is the same as *Althea rosea*, but it is far from being "almost worthless." It is a bad scion, but the Grape under good management. The true Althea is certainly far preferable.

**PISTACHIA NUT (Idol).**—It is not used in making genuine Almond paste. The following are the particulars you require, extracted from Dr. Hogg's "Vegetable Kingdom."—"The Pistachia Nut is the produce of *Pistachia vera*, a tree about 15 feet high, obtained originally from Syria, but now extensively cultivated in Spain, Italy, the south of France, and Sicily. The fruit is of the size and shape of an olive, but convex on one side, and concave on the other, and with a rougher surface. It has a tender, whitish-coloured pulp, which is rather sparse, and encloses a nut which opens with two valves, disclosing a greenish kernel covered with a red pellicle. These nuts are sweet and agreeable; they enter into the composition of nougats and other dishes, and are used for flavouring ices and cream. It has been preserved increased in sugar and other forms of confectionery. The best come from Arabia and Syria, but large quantities are exported from Sicily."

**GRAFTING MARSHY ROSE STOCKS (Ora amore).**—"I do not practice grafting. I prefer odder Rosea to grafted ones because the union in the grafted Rosea is not always intimate, and when this is the case the wind in apt to blow off the grafted portion. Before proceeding to tie the grafted Rosea out of doors firmly to a stick. For grafting, a keen eye, steady hand, and sharp knife are requisite. The stock should not be cut into deeper than one-fourth of its diameter. If it is a strong wood, the stocks in autumn should be subjoined to bottom butt a fortnight or so. The length of cut in the stock should be about 2 or 2½ inches. The cut should be quite smooth, and it is better done with one decisive draw of the knife than with successive cuts. The alder should be cut to fit the stock exactly, and be best to make a thorough and union of the bark on all sides. We read but a few in pots; cut the slice the length of a barleycorn, and insert it. I do not see why it should not answer.—W. F. RADCLIFFE."

**STATUTES (J. Z.).**—Write to Mr. J. Caven Fox, Royal Horticultural Society's Garden, South Kensington.

**POTATOES RIDGED AND TRENCHED ON A LIGHT RICH SOIL (Poplar).**—"Thin modes of culture would succeed, I think. Even in light sandy soil it would answer for garden culture, providing the ridges were formed, and the acts planted 8 inches deep in February, so as to allow the roots to take an early hold of the soil in the ridge. I have never tried the system, but certainly have great depth and bulk of soil to grow in, and I find these ridges retain moisture to an extraordinary extent in long-continued dry weather. There is also a double surface of soil gained for the beneficial influence of atmospheric action, always so congenial to the well-doing of Potatoes during their growth. I have, however, never tried the system on light sandy soils, nor have I had the chance to do so in this neighbourhood, or I certainly should. About this place the land varies in character from clay to loam, and from stonebrash to gravelbrash. A friend of mine tried the American hill system on a small scale in his field (a stonebrash) last year, and the trial was not satisfactory, but it was made on a poor spot; if the land had been half-trenched and properly prepared in the autumn, and an addition of quicklime given just before planting, larger Potatoes and more in a hill would have been the result. Light soils require tilling less than heavy soils, but time is especially favourable to the growth of the Potato, and in some form is generally found in plants. Besides, very light soils are rendered more compact in consequence of the fine attracting moisture powerfully from the atmosphere, and slugs and other creeping things cannot bear it. I tried the American hill system in this garden some years ago, and gave the result through these pages. The produce of one of the hills I exhibited at our Woodstock Show; it was just half a bushel, and I exhibited each tuber of 4½ lbs. weight. The plants were allowed to grow under the spread of the foliage, and the largest-sized Negroes (a coarse many-eyed sort), took a central position; as they grew the soil was well mounded up to the top of the plants, progressively to form large hills. The plan was fanciful, but it was an advantage over any ridge-and-trench per acre, and produced a great many small Potatoes.—R. FENN."

**STEPHANOTIS AND MAGNOLIA GRAFTING (The young Subscriber).**—We do not perceive the utility of grafting the Stephanotis, as it grows freely from cuttings, and we do not know any stock that would be suitable for it, except the vine, and that would simply be grafting to no purpose. For Magnolias, *M. obovata* is the best stock for the evergreen kinds, and *M. acuminata* the most suitable stock for the deciduous kinds. In grafting Magnolias a long time is required to effect the union; even in plants grafted it is usually two years before the graft can be separated from the parent plant.

**STRIKING AZALEA CUTTINGS (Idem).**—No special time can be named for taking off Azalea cuttings. They are to be taken off when the shoots of the current year become firm and rather hard at the base, but not very hard and brown. Take off the growing point, and 6 or 8 inches of the shoot. Insert the cuttings in sandy soil, surfaced with sand, and place them in a gentle heat of 70°. Cover them with a bell-glass, and keep them close, moist, and shaded.

**GROWING CUCUMBERS IN A PIT (E. G. K.).**—The bed in front must be foot high, and the same as the one in the back, and have a settled level with it. It may then be levelled and covered with soil to the depth of about 3 inches, and under each light, or at every 3 ft., hills about 10 inches high should be formed. In a few days the bed will have warmed, and the soil in the pit will be warm, and in each hill, at the meantime the plants could not have a better position than on the stage over the fire and tank, but you must be careful to have the dung stage from frequent turnings before placing it in the house, otherwise the rank steam may destroy the plants. Add more soil to the stage, and the plants through the sides of the hills, continuing to do so until the soil is 1 foot deep all over the bed. The soil most suitable is the top 2 or 3 inches of a pasture where the soil is a good, rich, medium-textured loam; this, laid up for six months, and covered with a mat of straw without admixture, is the best. A poor one-third of leaf soil or old, well-decomposed dry manure may be added. The temperature should range from 10 to 15° at night, and from 70° to 75° by day, with a rise of 10° or 15° on clear days, with plenty of air, and stopped up when it is cold. The plants should be put in the house when you sent a section. To give full particulars of the culture required from the present time would take up more space than we could spare. The culture of Cucumbers was fully treated of in the volumes of last year.

**REMOVING EDGING TILES GRAFTING MYRTLES (C. J. A.).**—Any tiles edging you may not have put down in place of turf you can remove at the expiration of your tenancy. Myrtles are frequently grafted, the commoner kinds being used as stocks. Grafting is best performed in spring before the scions have begun to grow, or at the end of summer after the wood has had time to ripen. The graft should be put in a close, moist, and short time previous to working, and after using grafted it should be kept there until the union is complete.





and barden well off. The plants may be had strong by potting them into 6-inch pots, when the first are full of roots, and again into 8-inch pots, growing them on in cold frames, protecting from frosts, but at other times giving plenty of air. You may thus put out strong plants which will bloom freely at the time you require. Give your orders early, and when you get the plants put them off in very small pots, and grow them on for a time before planting out, hardening off well previously. Plant out from the 15th to the end of May.

**BEDDING PLANTS IN ROSE BEDS.** (*Item*).—Our correspondent advises Gladstod to be planted between the Roses. "They bloom just when the Rose is out of flower."

**NAMES OF FRUITS** (*H. A. P. Barton*).—Your Apple appears to be Goggar Pippin, but we are not quite sure. (*Rev. T. Woodroffe*).—Wyken Pippin.

**NAMES OF PLANTS** (*E. L. J.*).—Wild Lignoric, Abrus precatorius. The roots are sweet-flavoured; the seeds are used to form rosaries, hence the specific name. Flowers papilionaceous, pale purple. A delicate twining shrub requiring hot-house culture. Native of the East Indies and other tropical countries. The seed must be sown in a hotbed. A mixture of one-third sand and two-thirds loam suits it.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### POULTRY-SHOW REFORMS, &c.

Now that poultry shows are drawing to a close, permit me through the medium of your Journal to offer to the various committees and secretaries a few suggestions which I trust may not altogether be disregarded, when I state that they are offered in no dictatorial spirit, but purely out of the interest which I take in all things pertaining to the feathered tribe, and with a sincere wish, as an old exhibitor, to further the poultry cause.

Allow me, then, first, to suggest that when entries are made, the secretary should always acknowledge them, for till the labels for the hampers arrive, one is often left in the dark as to whether the entries have been received or not. Then, again, the labels sometimes arrive on the very morning that the birds have to be sent to the exhibition; surely they might be forwarded a few days earlier.

The rules of various shows set forth that "Catalogues will be forwarded on receipt of thirteen stamps." How often they arrive on the last day of the show, thereby preventing those who are unable to attend from becoming purchasers of birds! And I speak from experience when I say that one is always anxious as soon as possible to know whether the specimens sent have been successful or not. As entries have to be made three weeks or a month before the show takes place, would it not be as well for the committee to have a proof copy of a catalogue from the printer, in order that they may revise it, and mistakes thereby be prevented? Exhibitors' names and addresses would then be rightly given, and the prices of the birds correctly stated, which is often not the case. Then let a separate sheet be printed containing the awards of the judges in full immediately after their decision. The rules set forth, also, that "Birds entered in a wrong class will be disqualified," yet Silkies are to be found in the same show competing in the "Any other variety class" for fowls, and also in the "Any other variety class" for Bantams. Padue Chamois are to be found competing in the "Any other variety class for fowls," although there is a distinct class for "Polish fowls of any variety." These mistakes might be rectified by the secretary when the entries were received, or disqualification should ensue.

When sales, too, take place the exhibitor is sometimes not informed of the fact till after the show, and thereby put to much inconvenience by needlessly sending to the railway station (often a long distance from his abode), for birds which he expects to return. Considering that the sales bring in a goodly sum to the exchequer, no time should be lost in letting the exhibitor know which of his pens have been claimed.

When birds arrive home, the card containing the prize awarded is sometimes to be found in the hamper; this is, undoubtedly, a good plan, as it is the only means of letting some exhibitors know what their favourites have done. Birmingham first, I think, set the example of having the prize birds sold by auction; which I do not think was worth the while of committees to take into consideration whether it would not save much crowding and inconvenience at the sale office, if not only the prize birds, but also the highly commended and commended, were put up to auction during the first day of the exhibition, and 20 per cent. deducted from any sum realised beyond the price stated in the catalogue?

Birmingham, too, is now, I believe, the only exhibition where Malays have a class to themselves; may I, then, plead for them, as they are a distinct breed, and ask the various

committees to take them also into their consideration, and kindly give them a place in this year's prize lists? They are gradually coming into favour again, in proof of which eighteen pens were exhibited at the last Birmingham Show, five pens in the "Any other variety class" at Bristol, and there is hardly a show at which they do not put in an appearance.—G. A. BROOKE, *Rugby XI. Towns, Salop.*

"JUSTITIA," on page 72, has touched upon the reforms required at poultry shows; much that he writes, I would thoroughly endorse—indeed, every exhibitor must agree with him and my old friend "E. M. B. A." as to the necessity of having the backs of the pens covered in with a smooth surface. I am quite certain no exhibitors would send to some show if they only saw beforehand the pens in which their birds were to be placed; they are certain destruction to any future distinction, at least till the next moult. Then as to the size of the pens, a very large number of the pens are not only too small, but so low that the cock cannot stand upright without touching his comb, and to crow he has partly to crouch; this is certain to injure the carriage. We want a definite size of pen for the large breeds—Dorkings, Brahmas, Cochins, French varieties, and Malays; a next size made for the largest of the moderate-sized birds, say the Spanish; and then smaller pens for Bantams, which often have far too much space as compared to their larger brethren. The "Any other variety" class should be shown in single pens, the size being varied according to the breed. At Bristol the second-prize Malay cock (if I mistake not, the first-prize Birmingham cockerel), had certainly no room to stand upright, and looked miserable.

At the smaller shows I am not at all prepared to go with "JUSTITIA" as to the treatment of Hamburgs; they are a variety which is offered a large share of the prize money, at several minor shows obtaining four or even five classes, while Polands have none whatever! and arguing as I have always done for variety, I think committees act more justly in making Spangled, Pencilled, and possibly, if means permit, Black classes. There is no very great difference in the Spangled or Pencilled varieties, save the colour of the ground; certainly nothing like the difference that exists between a White-crested Black unbarred Poland and the Silver or Gold varieties, yet even at Manchester, even at Bristol, Polands had only one class.

I may be uttering notions perfectly heterodox, but I confess I am not prepared to state that the present plan of the division of cocks and hens is altogether the best. In the first place, as to the appearance of the show, give me the cock and one hen. Each sets off the other. At the same time I trust we shall never go back to the cock and two hens. I confess to an inward satisfaction, especially as I have contributed somewhat to the change, at every schedule where one hen is shown, and I think how foolish the railways have lost, by their mean penny-wise-pound-foolish treatment of poultry committees, from this substitution of one for two hens. But, secondly, I am not so certain that the division of cocks and hens pays the committee, for are there not two classes for two sets of prizes? and in the case of the hens, the old difficulty of matching two birds militates in many of these classes against the entries. Take the entries at the leading shows, although every exhibitor has more hens than cocks, yet the classes for the latter are almost always better filled. For instance, Birmingham had 83 Coloured Dorking cockerels, 50 Buff Cochins, 74 Dark Brahmas, and 35 Spanish, against the following numbers of pullets:—65, 61, 51, 16. Taking these rather haphazard, I find the Buff Cochins I mention an exception; that was required, as our French neighbours say, to prove the rule. At Bristol the same breeds are, cockerels 32, 25, 32, 30, against pullets 29, 26, 25, 15. Strangely enough, again, Cochins the exception! Still I commend the entries to the careful attention of committees and framers of schedules. I feel certain that in most of the classes they will find my remarks correct. It may be urged in favour of the division of sexes that you often bought birds closely related: this objection is more apparent than real, and there are worse evils than in-breeding. The single cock classes have always been useful, and I do not write against them. It shows an utter ignorance of the characteristics of birds when a schedule makes a class for a pair of Game hens or a pair of Malays, yet, unless I write in error, the great London Show did this! They, however well matched at starting, are anything but a match in appearance when they return.

I have incidentally mentioned the railways, and I sympathise with my good friend, "E. M. B. A.'s" misfortune. The non-arrival of three or four pens together is, I fear, often the

fault of the committee at the show sending off a class of birds together, instead of the entries of certain individuals together; but in "E. M. B. A.'s" case, I am certain the injury must have arisen from gross carelessness, and surely is amenable to County Court influence, especially if, as on the Great Western Railway, you are treated to a 50 per cent. extra.

Exhibiting borrowed birds is so manifestly unjust that I think any exhibitor detected should be utterly disqualified from competition at any show. I am disposed to think that any such gross fraud as that perpetrated at the Whitehaven Show ought to meet with similar treatment, at least, for a limited time, and in the case of borrowing, both parties ought to receive equal punishment. It takes a large amount to "choke-off" some people; the Whitehaven *exposé* was tolerably complete, only some persons are so thick in the cuticle, they do not appear to feel that which is crushing to others. I am delighted to find that you think such a course advisable, and I shall hail with delight the first schedule that has the courage to print such a rule amongst their regulations.—Y. B. A. Z.

### CUPS FOR LIGHT BRAHMA POOTRAS.

It is proposed by the Light Brahma fanciers to get up two subscription cups instead of one for the next Southampton Show. As this Show has done so much for the Light Brahmas by, for the last two or three years, bringing together the finest collections of chickens that have ever been seen, it is hoped that this call will be liberally responded to. Already four exhibitors have promised a guinea each without being asked, thereby setting a most praiseworthy example. If all those who are interested in the culture of Light Brahmas will come forward, no doubt much more will be done than has ever yet been attempted.

It is admitted by all that there is plenty of room for improvement in birds of this beautiful variety, even to place them on the same standing as their darker and plainer brethren. I hope the Dark Brahma fanciers will not be offended at this remark on their favourites. All that is wanted in the Lights is greater weight and heavier feathering, and as this can only be attained by greater attention to their breeding, induced by greater prizes and heavier cups, I hope that many will prove their real interest in the matter in the best way, by a liberal donation, which will be thankfully received by—H. M. MAXWELL, Holmewood, Ryde, I.W.

### GAME FOWLS.

I ENTIRELY dissent from "NEWMARKET'S" disparagement of the exhibition Game birds of the period. I feel astonished that any breeder of Game who has had the opportunity of observing the gradual development of this noble bird from the bull-necked, short-legged, misshapen old English Game bird, undertakes to draw a comparison prejudicial to the present type. It must be obvious to every Game fancier that by crossing we have obtained richer-colored plumage, length of neck and leg, symmetry and contour of the bird. The examples pointed out by "NEWMARKET" as the result of the Malay cross are not the rule, but the exception. From being penned and pampered in so many ways, exhibition birds are not so hardy as the old type, but this is merely the result of circumstances. My experience has led me to a different conclusion from "NEWMARKET'S" in regard to the "pluck" of exhibition birds, as I have frequently tested them with cocked birds, and have found them quite up to the average in point of gameness.

As regards the Brown Reds with "Malay willow legs," I think you must have them all in the south, as I have never seen any here, and I do not believe that so far north as this (Sunderland), any man would commit himself by sending "willow-legged" Brown Reds to compete at an exhibition.—E. W. R. R.

### EXHIBITION PENS.

I AM glad to find that other exhibitors besides myself are alarmed at the new style of pen which is coming in. The wire pens at the Crystal Palace Show were certainly large enough, but they might have been quite as large and quite as good without exposing the birds not only to injury from the damage done to the feathers, but also to the risks arising from their fighting with each other through the wires. Few exhibitors, probably, have considered how much birds suffer from the loss of their tail feathers. To replace them an effort is required

which must cause a considerable drain upon the system, and this drain must affect both their condition and their weight. I could not but regret to observe that the noble bird which won the second place among the Dorking cockerels at Birmingham, and was deservedly placed first at Clifton, received a high commendation only at Sydneyham. The judges, I have no doubt, were right in not awarding him a higher position; for his condition was not what it had been, and his tail feathers were imperfect; some of them had disappeared, and some were broken. I hear, too, on good authority that the judges find the difficulty of making their awards increased by the new pens. They say that the light streaming through the wires behind prevents them from examining and comparing birds so carefully and completely as is the case when the backs are closed and not open. This, let me say, is not a suggestion of my own; it is the opinion of a judge who has tried the new pens, and found them wanting. I trust, then, that committees, now that the competition in the way of pens is so great, and that they can obtain pretty well what they like, will consider the question that has been raised, and will eschew pens which have open wire backs as well as fronts.—E. M. B. A.

### LOSS FROM POULTRY-KEEPING.

As a return for the pleasure derived from others, I copy the following from my poultry memoranda for 1869:—Number of birds in January, nineteen; in March, number reduced by deaths, cause not known, to sixteen; April, three sold to make way for growing chickens; number remaining, thirteen; number of chickens reared, twenty-four; this out of seven sittings. More were hatched but gave up the effort of living before the first week was out. Number of eggs during the year, 910. Value of eggs, £3 10s., value of fowls and chickens £1 12s. 9d., total value, £5 2s. 9d. Cost of poultry for the year, not including vegetables from the garden, £5 13s. 9d. Deducting the value, £5 2s. 9d., the loss has been 11s.

In justice to the poultry, I must say they are usually confined in a sunless yard. Their days out are few in number, generally when the frost has hardened, or the snow covered up the soil; yet they give, if not profit, much pleasure.—M.

### PROFITABLE POULTRY-KEEPING.

In reply to a private correspondent, the food I especially give my fowls is barley, barley-meal, and Indian corn; they occasionally have a meal of boiled rice, mixed with barley-meal. I tried boiled potatoes mixed with barley-meal, but that they did not like. During the short winter days I only fed them twice a-day, but in summer those in a limited space three times a-day, and I gave a good supply of lettuce. I consider fowls to do really well should have as much food as they can readily eat at each meal, never leaving any about; by watching this you will soon learn about the quantity they require. Those which I have, that are allowed their full liberty, have not been so fed, as I trusted to their picking up a good deal. In last week's Journal you will see the profits of "A. W." are far greater than mine, probably from better feeding, as the cost of food for his six amounted to £12 0s. 2d.; the food for my seventy-six to £21 13s. 9d. This year I have commenced by more liberal feeding, with the following result:—January, 1869, from seventy-two fowls, 211 eggs; January, 1870, from fifty-one fowls, 269.—M. E.

### PORTSMOUTH POULTRY, PIGEON, AND BIRD SHOW.

CONTRIBUTED with poultry and Pigeons, the Portsmouth Committee this year offered liberal prizes for Cage Birds and Rabbits, and thus secured the attendance of a very large number of visitors to their Show, held on the 1st, 2nd, and 3rd inst. The number of entries showed so great an increase on that of last year that the Volunteers' Drill Hall was selected as the most suitable building for the display of so great a variety of specimens; but if the increase be as great another year, even its extensive room will not afford sufficient accommodation. The arrangements were unusually good, and the pains belonging to Mr. Elliott, of Southampton, showed off the specimens to the greatest advantage. These pens, giving sufficient room for the larger kind of poultry to move about, are a great improvement; each pen for Geese or Turkeys being 3 feet 6 inches long by 3 feet high, and the same in depth. The Dorkings, Brahmas, and Cochins had also roomy pens.

Many of the Grey Dorkings were most praiseworthy, and so were the Light Brahmas generally; but the Dark Brahmas were not so, excepting the few prize pens. *English* were most meritorious, and the





the pure Silver Mealy—a bird very useful to the darker Blues, and rarely now found in all its perfection owing to certain crosses in the Blue strains—we may say in general terms that it is principally on the side of strength and structure to the standard classes that non-standard birds have been, and can be, best utilised. And this is revealed the only principle on which they may safely be admitted to competition—strictly as a class for the convenience of breeders, which in the schedule should be named the "defective plumage class," and should be judged solely for the structural properties, size, strength, and contour. Such a class would cover the whole range of non-standard specimens; for besides unclassified birds, it would bring out many of sound colour, not now entered in the standard classes by reason of their too extravagant markings or their curved breasts and pinions. And to this extent it would be of extra value to the breeder, who would occasionally have the opportunity of selecting matches suiting with structure some advantages of conformation in plumage properties.

The reasons for the classification now suggested were argued at much length in this Journal some seasons ago, and are too numerous for complete recital. Whatever may have been the earlier uses of defective birds, certain it is that the standard classes of to-day bear evidence to their too profuse employment. Breeders are not always confining to the selection of the loft their methods and operations,—bringing only to the light good results in the shape of improved standard; but, on the contrary, they are too frequently to be found putting into the show-pen as standard (B) birds, specimens betraying the faults of their defective parentage in proportions quite outweighing excellencies; and betraying, too, that economy rather than standard was the object contemplated in the parental matching.

Again, that great consideration for defective birds, which might have been justified when crosses were fewer, and the standard classes more in need of structural help, is no longer warranted, for superiority of structure is frequently found within the standard classes themselves, and they for the present can supply a plenitude of desirable crosses. Indeed, we may safely assert of the new under report that the standard classes have little to hope, and much to fear, from the very many of the non-standard birds exhibited. From all but a very few, nothing but retrogression could fairly be predicated as the result of their employment, while more than ever the use of a non-standard bird should be regulated by the consideration that the advantage to be obtained completely counterbalances any possible evil.

If, therefore, the Society is anxious, as we know it is, to give a further impetus to scientific Pouter breeding, let it strengthen its position by merging the present formidable array of non-standard classes into a single "defective plumage class," with the usual sub-division for cocks and hens, and let it be a strict instruction to the judges to award only for superiority of strength, size, and structure. Thus the standard will be guarded at every point from infringement or prejudice, provision will be made for every meritorious or really useful bird, breeders will be accommodated, the prize money will be economised, worthy specimens will find their true level, and the repute of the Society will be advantaged.

Once more we urge that a tolerance of inferior birds will more than outweigh any good likely to result from the maintenance of non-standard classes. The alternative is, therefore, between their rejection altogether, or a severe treatment in classification and judgment. A few general criticisms will conclude our report.

(To be continued.)

### SKY TUMBLERS AGAIN.

I STARTED the correspondence upon this subject, and I think that I can close it very summarily. The Sky Tumbler is, I feel sure, our English Tumbler, the long-faced as distinguished by that designation from the fancy short-faced variety, carefully bred—not akin in nesting pairs—for model, in Swallow form, and for length and strength of pinion or wings. I have birds now, not six months old, with flights or wings that cross at the points over the tail, long bodies, rounded at the breast, bullet heads, short legs, sparrow-bill beaks, and pearl eyes, in outline not unlike the Swallow or Swift, and which birds, of their own accord and not driven, will fly cloud height any fine day for from one hour to one hour and a half.

My birds are not in a trapped loft, but at liberty, and almost daily, when fine, fly as I state for their own diversion like so many Swallows or Swifts. I feed them, like winged racers, on red wheat, small horse beans split, and little grey peas mixed, inside the loft always, and let the water bottle and salt cat stand at their will, inside also. Grit they pick up outside at leisure.

Birds that fly under training from a trapped loft, would fly a couple of hours naturally without fatigue; when flown longer they fly unnaturally—that is, are driven or trained, and excited by brandy paste, or by a dose of hemp seed before being flown. Hemp seed produces semi-intoxication, so does brandy paste, hence birds fly themselves sober again, flying for hours, and occasionally they fly away altogether—i.e., lose themselves, as unfeathered and wingless bipeds do under somewhat similar

circumstances. Therefore, my conclusion is, that Sky-Tumbler-flying is an art of breeding and training, exactly as cocking was, and is still, or as horse-racing is at this day.

The birds should not be akin, and should be allowed to breed from February to September only; and every alternate nest should be robbed to keep the old birds to their young until on the wing, otherwise they will breed their stamina out, and degenerate. Let your readers procure good mated birds as I mention, not akin, and try the art of breeding and feeding—train if they like—on my plan, and I dare guarantee Sky Tumblers in their lofts.

I can confidently commend the Birmingham Roller from experience and practice. The word "Roller" is apt to mislead, for this Tumbler is no Roller other than skywards, but is vulgarly called a Roller because in its descent it throws occasional double somersaults, or rapid rolls, like a wheel, a recommendation, in my opinion, so gracefully and wonderfully performed as this roll is by some of these Pigeons. The appropriate description is "Birmingham Sky Tumblers," which these birds are in the strictest sense. The Macclesfield Tumbler I know to be an excellent bird, a fleet high flyer, though, I think, not so enduring as the Birmingham Tumbler, the difference being, I should say, as that betwixt the racer and the hunter in horses, a difference of bone and sinew, and not bottom or pluck, in which both excel.

"OLD BOB RIDLEY"—I acknowledge the compliment of this gentleman's repeated reference to Macclesfield, Manchester, and Chester, as likely to answer my search for Sky Tumblers. The music of his letter, certainly "with a tune in it," is as enchanting as the poetry which he tells his fantasy; for although our correspondent soars well high "the music of the spheres," and leaves us awhile in mystic haze, he drops his wings, and alights again in our midst with the lyrical melody of "Old BOB RIDLEY" on his lips.

I am delighted to find "Old Bob," though not the ideal of my former conception of humanity, still to be a sublimity mortal, with sympathies his "*nom de plume*," awoken in kindred souls. "One touch of Nature makes the whole world kin."—READER.

### TRUMPETER PIGEONS.

I OBSERVE on page 77 a letter upon this Pigeon, and being of the same opinion as your correspondent, that interchange of ideas upon the standard properties of the different varieties would be acceptable to fanciers, I offer a few words on the subject he introduces. Having kept and bred Trumpeters for years, I have had a pretty fair experience of the variety, and shall be glad if I can say anything worth reading.

In the first place, I agree with your correspondent's proposition, that the properties of a Trumpeter are hood, limb (or feet), colour, and size.

Rose and hood are, undoubtedly, the first properties in any colour.

The rose should be large, coming well over the eyes, and nearly to the end of the beak, well placed on the head, and radiating every way from the centre with the greatest nicety. A split rose is very objectionable, and although size of rose is a great point, I would prefer a rose of moderate size well placed to a larger one which was irregular and uneven.

The hood should be thick, the feathers being long, standing well above, and curving well round, the head in an unbroken outline. The broader the head the better.

Trumpeters should have a mane something like that of a Jacobin, though, of course, not nearly so thick in feathering. I have seen some really first-class birds whose neck feathers grew as in a plain-headed Pigeon just up to the point where the head sets on to the neck, and at this point the feathers grow upwards to form the hood. This causes a disagreeable-looking break, though only a minor point.

A perfect specimen should have about thirty feathers on each foot, from the under side of the hock joint to the middle claw, without counting the short feathers which cover the inner side of the leg, and top side of the foot. The longest of these feathers should be nearly 5 inches in length. This is a point too much neglected.

In their anxiety to secure good roses and hoods, fanciers are apt entirely to neglect the feet-feathering. For my own part, I like to see the three points I have named, in equal excellence, as I place length and quantity of foot and leg-feathering only the merest trifle below rose and hood.

Another important point is matching. A pair of Trumpeters

should match in size, style, colour, and marking, also in colour of eye and beak.

An attempt has been made in certain quarters to make the pearl eye indispensable in Blacks and Mottles. I contend that it is quite immaterial whether the eyes are orange or pearl, so long as the two birds in a pen match. Pearl eyes were scarcely known in Trumpeters before the introduction of the foreigners. I have both colours, but prefer the orange-eyed birds. It is simply a matter of taste, and should not count as a point either way in a competition.

In colour the Blacks should be the brilliant lustrous black, such as we see in Barbies.

With respect to judging Mottles, I beg to differ from "FLEUR DE LIS."

Again, Isay rose and hood must be taken first, but colour and marking exceedingly close upon them. My *beau idéal* of a Black Mottled Trumpeter, is flight, tail, breast, and back, perfectly black; head black, or slightly mottled, and a patch of regular mottling on each shoulder not more than 2 inches in diameter. It is very difficult to get every feather of the flight black, and though very objectionable, one or two white feathers on each side do not amount to a disqualification. Entire white flights are utterly inadmissible in a show pen. A white head, though objectionable, does not disqualify, if accompanied by dark flights and tail.

I would not be thought to undervalue colour and marking, as a Black Mottled Trumpeter perfectly marked is one of the rarest birds in the fancy, and I believe judges are giving this fact due weight in their decisions; still I do know of a solitary case of a large show not long ago, where, in consideration of unusual quality of rose and hood, colour and marking were entirely ignored in a class exclusively for Mottles. This I thought a great mistake.—J. FARR, *Jes. & Sons, 11, Upper Hill, Derby.*

## BELGIAN SMERLES OR ANTWERP PIGEONS.

I am glad to see the above most useful Pigeons beginning to be described in your pages. I have kept them for about twelve years, and can pronounce them to be the most useful Pigeons that fly. They can be trained to come over home like the Tumblers; for homing and racing there is none to equal them; for breeding good, fat, young birds for sale, &c., none can excel them; and they are first-class runners for racing, young Fancy Pigeons whose parents cannot be trusted to rear their own young. There are colours amongst them to suit nearly all tastes. I have bred them of the following colours—viz., clear buff with yellow bars, clear dun with light red bars, sky blue with black bars, light drab with black or dark brown bars, light grey with black bars, buff drab, dun drab, drab-dappled, blue-dappled, and sometimes of a nice black. They are neat, strong, and compact, and we sometimes say more sagacious than any other Pigeon with which we are acquainted. They are also very hardy, active, lively, and pleasant-looking.

The following are the points of excellence we aim at:—Back short, thick, and broad at the base, slightly curved at the point; head rather broad and nicely rounded at the top; eyes large, prominent, and fiery red; neck rather long and slender; breast plain, broad, and deep; shoulder thick and strong; legs bare and red below the knee, rather long, and standing well up; flight feathers very broad and of moderate length; tail tapering almost to a point, and slightly inclined to the ground; size rather less than that of the Pouter. The colour I prefer is a clear light gun, with neat bright red bars, and a black beak.—J. PARKER, *Burford, Lancashire.*

[We shall publish next week a portrait, with notes on what is considered a standard Antwerp.—E.N.]

## THE HIMALAYAN RABBIT.

It is to be regretted that "Druckwiese's" first letter on the Himalayan Rabbit, in which he avers that it is a cross between a Silver-Grey and Chinese, should happen to be at the binder's, as he appears to have entirely forgotten what he wrote, and only to remember clearly what he did not write. He now says: "What I mentioned was a cross between the Silver-Grey and the Chinese, and not the common Rabbit." In all country I beg to say that the mentioned nothing of the sort. There is no such vague expression as "the Chinese" in the history of the Himalayan Rabbit, and if there had been "Druckwiese" himself could not have told us what it meant. It is significant that he does not refer to his second and longer letter, where he again

supports his theory with the addition that "It has been proved by experiment ever" without the least intimation that his first letter had been misunderstood, and he must have seen it clearly enough if it had been the case. I have found both from conversation and from correspondence with a large circle of friends in the fancy, that they, one and all, believed "Druckwiese" had meant what he said, and said what he meant.—B. HUBBARD, *11, Beaufort Terrace, B. H.*

I SEE that "Druckwiese" speaks of Mr. Darwin's theory respecting the origin of the so-called Himalayan Rabbit. Mr. Darwin in his "Animals and Plants under Domestication" shows as a matter of fact (not theory) that this Rabbit originated in the way one of your correspondents, whose statement "Druckwiese" throws doubt upon, stated, and he incriminates Mr. Bartlett, of the Boston Park Zoological Gardens, as having personally proved the fact.—P.

[Here the controversy must end.—E.N.]

## RECOLLECTIONS OF OUR CANARY SHOW.

"Give me facts,  
And I'll talk logic with thee."

"Do you know anything about the moon, Phileas?" Did—I—know—anything—about—the—moon? What a strange question! Did I look like a man connected with lunar affairs? Was there something sinister in my appearance? Had I a restless, unquiet expression in my eye? Of course not. I was hardly a good dissembler, my share of "sprilled tones" for three" as ordered by telegram from Manchester in the morning, when this moonstruck question was propounded. That I was hungry, for I had had little time for eating during the day, and might have been picking my bone ravenously, and that I was dirty—dreadfully dirty, for I had been in parking bins from five o'clock in the morning. I mentally acknowledged; but that I was a fit subject for an inquiry in lunacy was an opinion I dissented from. But it suddenly flashed across my mind that possibly my examiner might be fully persuaded in his mind that any connection with a Canary show was ample evidence of lunacy, and hence his question. So gathering my wits to me as well as I could, and summoning as intelligent an expression as was possible under such embarrassing circumstances, I politely informed him that I did not know much about the moon. "Of course you'll know that astronomers are of opinion that our earth is about to throw off another moon?" What a relief! It was simply an interesting *bona fide* astronomical question he was introducing. Now I am rather strong in astronomy. I went through "Kepler" who I was a boy missing all the hard problems, I have "Globe" of celestial mechanics at my fingers' ends, and I occasionally invest a penny with the latest of the century for the latest, and have a peep at Kepler's works now and then to keep my eye. I thought that was "form" enough to back me out in the discussion, and while I was busy laying bare the wondrous skeleton of the wing of a fowl, I believe the instructor of my early youth stood me in good stead. But I have since, by a very complicated process of reasoning, arrived at the conclusion that the second query was only kindly put to quiet my suspicions as to the object of the first, for upon reflection I am perfectly satisfied that all managers of Canary shows must be affected in that unfortunate way which is attributed to the effect our satellite has on the inhabitants of its primary. Let us hope the earth is not going to launch another moon to annoy us. (Very if it launched the one we have.) I prefer the sublime story of its creation which we have in the good old Book. But if such a catastrophe be impending the results will be appalling! The new man-in-the-moon will have enlarged schedules, increased prizes, silver cups *ad infinitum*, and universal bankruptcy to answer for. "Coming events cast their shadows before," and is it not an open question whether the meteoric shower of silver, & sundries attached to the Palace schedule may not be attributable to the high state of electrical condition which is to eventuate in the birth of the new moon?

But it was not direct lunar influence which affected the Committee of "our Canary Show." The disturbing force was essentially mundane. "How about your Show?" I recollect it as the "Two Thousand Guinea" preparatory to the Crystal Palace "Daisy." Don't let it fall through. Yours ever—H. A. "Why did you write that, H. A.? Why did you throw such a firebrand in the midst of a community of peaceful citizens who had fore-sworn the pleasures (?) of Canary shows for ever? Why did I not burn the dangerous missile instead of putting it into my pocket? Why did I pull it out at street corners, and rattling some friend by the button-hole, tell him the mysterious words into his ear? Don't let it fall through." Why did I go from home to house, the burden of my song ever the same—"Don't let it fall through?" And why did you, Mr. Young, instead of quietly ejecting me from your premises, listen to the seductive strain—"Don't let it fall through," and smiting my hand with a very heavy suite, say, "Daddy! (gent familiarity, but you know I don't mind it from him), it ain't no do-over, we'll try again! And who is to blame for all this and all that followed?" Yours ever—H. Ash—who I may penently shipped. A few hasty notices, and our Committee was soon called together. The immediately speaking I should say the mysterious was sanguine, with how largely developed. There have been times in the history of our country when great social or political questions have agitated society, when, perhaps, the subject of reform

or disestablishment has been uppermost in men's minds, and the novel "How 'You do' fine day!" has been exchanged with serious faces and bated breath; but these minor affairs pale before the graver topics debated by our "fancy" when in solemn convalescence assembled. "The a Belgians—can numbers count them? or is the English language sufficiently copious to describe them? We ask one member for his idea of correct classification of them. His reply is oracular, and full of hidden meaning; so deeply hidden, that to this day we cannot fathom its depths. "Belgians came from the Vatican. They have been kept out of natural history long enough, and it's my opinion the sooner they're into it the better. That's what I told Mr. Kidd. Slip them between two greyhounds, and where are they? Why, there they are!" I said our language is defective; it must be. The practice of Scotland, and they, he decided in and out let paring. "Such? The value of a tick or a blotch; what constitutes even, and what uneven marking; what there ought to be a class for, and what there ought not to be a class for; what is to stand, and what is to be struck out, that our coat may be cut to suit the dimensions of our financial cloth—for matters for deliberation, the importance of which is only imperfectly understood by the outside world.

The schedule finally determined on, was posted broadcast from John O'Groat's house to Land's End. A few towns in Scotland absorbed more than three hundred, with a return of six or seven exhibitors; but we shall cut it then over the Border when the new moon comes. The folding, enclosing entry, certificates, pasting, addressing, and stamping of nearly a thousand circulars was a tedious operation for one pair of hands, to say nothing of the mass of correspondence incident to the affair; but the whole business, divested of the matter-of-fact drudgery attached to it, was exciting enough, especially when the moon was at "change" and "full." The culminating point was the date of closing entries. For a day or two previous it was a frequent question, "How are the entries coming in?"

"Slowly, very slowly!" They always do come in slowly till the last day; so keep your heart up. Inquirer looks blank, and goes through a pantomimic exercise of frowning, makes vague reference to the amended bankruptcy laws, and thinks it a pity we didn't have the show in time to take the benefit of the old Act—goes away a sad man. But the day arrives big with the fate of our Show, and with a ring which says plainly, "Here they are, and don't forget my New Year's gift," the postman delivers a bundle of letters, which at once quiet all Inquirer's apprehensions. Nice, fat, bulky-looking envelopes, well packed with certificates, cheques, post-office orders, and stamps. Some contain letters. One man says his will be the "honestest bird in the Show," but it isn't. Another says, "You don't often see such a lot of birds as I am going to send. They are sure to take first prize, and I'll be the present of some fish on Monday," but they didn't, and I never got my fish. There are the business-like entries of men who send twenty or thirty birds without a word of instruction; they know we understand our business; and there are entries of two or three with three volumes 8vo. of cautions; legible and illegible entries, correct and incorrect, down to the man who enters a "fine-marked cock" as a British bird.

I pass over the posting up, the sending out labels, getting up a twenty-eight-page catalogue, and other trifles which come in the way as the moon passes from "opposition" to "conjunction" till we arrive at receiving-day. I know the packages by sight—Moore & Wynne's, shaped like giants' coffins; J. N. Harrison's, models of neatness, compactness, and clever contrivance; Tones and Irons & Gayton, more coffins; "Scotch Fancy" all in strong boxes; Stansfield, neat crates; Derry like very business-like, with Mr. Loxton's actually in a way; finally lots in most peculiar covers. One man had borrowed the best tablecloth and a woollen shawl, another some yellow-cases, and a third a lot of old umbrellas covered. Then there are the neat brown holland covers trimmed with red braid, the work of some pitman's thrifty wife's fingers. Evening brings "Yours ever—H. A.," with his boxes, just as Mr. Young appears with his; both "cup" men. They possess about 12 feet 4 in. of muscular Christianity between them. Both looked very "fit" as they clasped hands with a giant's grip, and both looked confident. "Yours ever—H. A.," thought he would just "land," but there was a quiet, placid expression about Mr. Young, refusing itself over the entire man down to his gaiters, which spoke of reliance on his ability to win. Meanwhile a very unobtrusive individual was quietly staging birds destined to lower the colours of one, and run the other very close. Mr. Rutter had not been to Belgium during those awful gales last autumn for nothing. He had not made love to steam-packet officials for care of his birds when he was in the regions of sea-sickness, nor prayed the sympathies of relentless Custom House authorities at Dover for birds of no value; and while he gave this one a scratch and the other an affectionate scrape, which the acrobatic was responded to by the most hideous displays, it was evident that the man who could distance all competitors, and run one, two, three in four classes, would stand a great chance of repeating the coup of last year.

A final walk round the hall with a systematic checking-off of the feathered beauties, and our most indefatigable attendant pulled his bed from under the temporary platform, the gas was lowered, and we said good-bye till next evening, when the judges were expected to deliver their awards. One by one the Committee and anxious exhibitors dropped into the Committee-room, "waiting for the verdict."

Many a pleasant story and joke pertaining to the fancy went round the circle, to while away the late hour, till the merriment was adjoined by the appearance of the judges, and in a very few minutes I was able to announce that Mr. Young was the fortunate winner of all the cups, Mr. Rutter and Mr. Ashton being close up. The correct return of the running in our "Two Thousand Guinea" would be, "won cleverly by a neck, a head separating the second and third." What congratulations followed, what shaking of hands, what hearty expressions of feeling from all sides! There was but one regret, and that was that our esteemed friend Mr. Walter was not more successful; but he assured me as soon as he arrived, that he had only come "for the sake of auld lang syne," did not anticipate taking any, if any prizes. Few men have taken such a hold on our regard as he, and I believe the winner himself would have cheerfully laid down his laurels to decorate Mr. Walter's brow.

The glories of our opening day, how His Worship the Mayor kindly presided, and presented the trophies, and how eloquent speeches were made, are these events not duly chronicled in the papers of the day? But the presentation of the cup officially by "Yours ever—H. A.," will not soon be forgotten by those present. Our apron-hall, our private theatricals, our concert (an annual festival at which we always sing "Hard Times") I do not know why, but we do, and no one regrets of history. It may be that history repeats itself, but it will have a different task to repeat all the pleasures attending the "Two Thousand" of 1870.—W. A. BALESTON.

## BREEDING PAROQUETS.

SEEING in "our Journal" some directions to be observed in breeding Paroquets, reminded me of what I saw last Christmas.

Mr. Thos. Hallam, watchmaker, Lutterworth, has a pair of the Australian Grass Paroquets. On the Tuesday before Christmas day he was surprised to see a small white egg at the bottom of the cage; he at once told an old friend and fancier of the occurrence, and together they made a nest, put it into a box, and placed the egg in it. The next morning another egg was laid, and on the following morning a third, after which the hen bird began to sit. The eggs were very like those of the Kingfisher in shape, but not quite so large. Is it customary for them to lay at this time of the year? And do these birds often breed in confinement?—CHARLES BAKER.

## HOW ITALIAN BEES ARE MARKED.

MANY persons do not understand what the yellow bands are that distinguish the Italian from the native bees. Some suppose that when we speak of yellow bands we mean the lines round the lower part of the abdomen. This is quite a mistake, for these lines are alike defined in both native and Italian bees. The yellow bands are around the upper part of the abdomen, and are frequently more of an orange colour than a yellow. The first band is a narrow stripe next to the thorax, and not always clearly defined, though it is always to be seen in the pure bees. The second may be called a broad stripe separated from the first by a hair-line of black. The third, when it appears, is perhaps a little more than half the breadth of the second, as a general thing, though sometimes it is not half the breadth, and not so clearly defined. Many persons take the broad stripe for the first band, and hence discover only two bands where three may be distinctly seen. The third line is also separated from the second by a hair-line of black.—J. H. THOMAS (in *Toronto Globe*).

## OUR LETTER BOX.

FOWLS NOT LAYING (M. J. S.).—Either you have all old hens, or there is mismanagement, or you overfeed, or your eggs are taken. Something of this sort must occur, or you would have more eggs. From a smaller number of hens we get from two to three dozen daily, and we are looking for an increase. Very old hens will not lay till next month; if they are irregularly fed they will not lay. Overfeeding is not only giving too much food, but it is giving it in the wrong way—for instance, once giving grain, and other food in a trough or any vessel where fowls feed by mouthful instead of by grains. This makes them dull, sleepy, and uncomfortable; they squat about and grow fat. If the eggs are taken you must not out the rooster; rats take them sometimes, and unwarlike fowls are told their dexterity in doing it, but they do not take dozens daily. Give a mixed maize or good barley at daybreak, meal later in the day, and one or two handfuls of whole corn afterwards. The distribution of feed is half the battle. Feed often and little—that is, allow no food to be about, and only give so long as they run after it. You do not want so much instruction as you fancy. Try to feed your fowls as Pheasants, Partridges, and wild birds feed themselves.

POINTS OF GOLDEN AND SILVER-SPANGLED POLANDS (B. P.).—We will give you as much information as we can find room for, but for "points, colours, markings, &c.," we must refer you to some of the books published

on the subject. Golden Poland's must have neither comb nor wattle; they must be straight-backed. Their plumage should be grizzled and not laced; the cock's wings should be laced and barred. In the Silver the tail should be white tipped with black; in the Golden the colours should be correctly blended. The less white there is in the top-knot the better for the birds. White feathers, like grey hairs, come on with age. The markings of Gold and Silver are alike, the foundation colours alone differ.

**HEN LAYING DOUBLE-YOLKED EGGS (E. B.).**—Laying double eggs has nothing to do with being too fat. Fowls which are too fat do not lay at all. There is something amiss in the eggs alone. Furge her freely with castor oil, and she will lay a Brown-breasted Red.

**POINTS OF BLACK RED GAME BANTAMS (Young Pinner).**—Game Bantams require to have the same points as Game fowls:—sharp sickle head, close barred plumage, especially the wings; these carried close to the body, and without the suggestion of a droop. The tail should be too large or heavy, the sickle and rump feathers drooping, and the tail-feathers are abominations except in Sebrights, and we hoped we should never hear of them again. The two red feathers in the breast of your Black Red cock would disqualify him, unless the class were for Black-breasted and other Reds. He would win as a Brown-breasted Red. The two feathers would disqualify him as a Black-breasted.

**BRAHMAS DOWLINGING (Brachma).**—Our experience of Brahmans is, that the only complaint they suffer from is the "Amio Domini." We find them always healthy and doing well. We should write and ask how they have been killed, and if they have been killed by any means, but some seeds or turfs of mowing grass cut with plenty of mould. Give the Brahmans bread and milk.

**COCK'S INFLUENCE (J. B.).**—You are going into vexed questions. We can only give you our own opinion. We say to your first question, the whole. We do not know how to answer your second. The cock would be laid at its proper time without reference to external influence on the others, that influence would be felt within twenty-four hours.

**NANTWICH PORTLATY SNOW (A Cheshire Subscriber).**—You must send your real name and address, and we must make inquiries before we can insert even a part of your letter.

**BORDER COUNTIES POLTRY (J. B.).**—Mr. J. Sibson says that the second prize for Tumblers was awarded to him, and not to Mr. Yardley.

**BLACK HAMPTON HEN PARALYSED (W. C.).**—The loss of the use of her legs most probably arises from over-fatness. The "high condition" and the "laying" indicate that during the exertion to expel the egg, a blood-vessel ruptured on the brain. Lower and soft diet, and perfect quietude, are to be adopted. If she recovers, which is very doubtful, you may safely breed from her.

**"BROWN RED" and "LEICESTER"** are wished to be communicated with by J. F. Stanfield, Esq., Solicitor, Accrington, Lancashire, if they will send him their addresses.

**ADDRESS (J. France).**—We never reveal the name of a correspondent who chooses to write anonymously.

**POULTRY SHOWS (G. J.).**—We know of no shows but those which appear in our weekly list.

**DUBLIN POULTRY SHOW.**—"You say," Grey Dorkings were exceedingly good, and, to the credit of the Sister Isle, all the prizes remained at home." A reference to the prize list, which I have before me as I write, will show that the third prize was awarded to a pen belonging to myself. The other prize and cock birds were, however, shown by Irish exhibitors. My birds only reached home from Newark (where they had taken the second prize about 1.30); at 2.10 they were in the train again en route for Dublin.—E. BARTRUM, Great Brighthelm, Herts.

**ALLEGSBURY DUCKS' BILLS (Dreton).**—The probable cause is, that the water which your Ducks use has, through causes, changed its colour. If you are unfortunate enough to live in the vicinity of heath land, and the water comes down from it charged with peaty matter, that will cause it. Wait till the weather changes, and the bills of your Ducks will change at the same time. As the show draws nigh, let them be turned every morning into meadows, with the cold dew upon the grass. The cold damp weather has somewhat interfered with the circulation of your cocks. Give them some bread and ale, and while the wet lasts give them stimulants daily.

**DUCKS' EGGS (R. P. R.).**—We constantly use Goose and Duck eggs for puddings and kitchen purposes, and they are approved. We have never used Swan's eggs, but we should expect them to be as good. It is even said by many who are no mean authorities that a Duck's egg within an hour or two of being laid is superior to a hen's. At that stage the egg, which is afterwards so leather-like, does not set, but is almost as light as whipped cream.

**MILLET and DART SEED FOR PIGEONS (J. C. S.).**—No Pigeon authority that we know of has ever recommended the above as Pigeon food. The dart might do, it is a kind of live.

**FANCY PICTURE FROM WEST TOWN HEN TAIL (Pinner).**—As you say the trick is a recent one, we would recommend you to draw both night feathers, and by the time they were grown again the habit may be forgotten.

**BIRMINGHAM ROLLERS, &c. (Toby).**—There's birds always have feathers on their feet, and they do not fly high and keep up like sky Tumblers. They are called rollers, because they confine their tumbling, rolling over for twenty times together. Carriers are too valuable to be allowed to fly. Dorkings do not mind. The flying of these birds is wholly different to that of Tumblers. We cannot teach all Pigeon fanciers in an answer to a correspondence, so recommended you to get Brent's "Pigeon Book," free from our office for twenty stamps. Study that book, and you will obtain abundant knowledge.

**RENTS (John A. Pinner).**—Rents have only one property—size; they are esteemed simply on account of their bulk. First-class birds should weigh over 10 lb. each, and second-class should add to the weight, and so does time, as they increase until four years old.

**BUYING PIGEONS (H. H. C.).**—Whether Fancy or Dovecote Pigeons, never pay for them until you have seen them. If you prepay by a post-office order, payable ten days after date, which can be obtained at any post office issuing such orders, then, if in time you give the post-master notice not to have it paid, he will stop the payment.

**PULLING OUT FEATHER STERPS—BLACKBIRDS PAID (C. A. J.).**—Pulling out the stump of a Canary's tail will cause no pain if the feathers be old and dry. The new feathers will show themselves in from ten days to a fortnight, or thereabouts, and the tail will soon grow again to its original dimensions. The hindmost feathers are in case of scurvy, at least it is known as such. Rub the place with sweet oil.

**CANARY AND LINNET MULE-BREEDING (E. B.).**—"About May is the best time for pairing them. Any sort of hen Canary will do. The result is all a lottery, many blanks and very few prizes.—W. A. ELKSTON."

**CANARY SIX YEARS OLD (Pinner).**—"If the bird be in health it is not too old to breed from. If it be a yellow cock, mate him with a Buff hen, and a vice versa. It will not get stock going. But on account of 'The Canary and other Song Birds,' in 82, or for by post, 1s. 7d. Consult Nos. 392, 393, 3-6, 397, 379, and 374 of the Journal for simple hints on the subject. I shall be happy to afford any information, and congratulate the fancy in having another lady enrolled among its numbers.—W. A. ELKSTON."

**ADDRESS (J. Magner).**—W. J. Pettitt, Hive Manufacturer, Dover.

**DIP-LOGGING BEES FROM WAINSCOTTING, &c. (M. E. B.).**—It will be a difficult matter to dislodge the bees after thirty years' location in the walls of your house; and it is also very difficult to suggest any mode of proceeding in any individual case without an actual inspection of the state of affairs. Should it even be practicable to destroy every bee and remove the accumulated stores, yet, unless every portion of the comb be extracted, and every crevice stopped, the vacant spaces may again soon be taken possession of by another colony. At least this has been the experience of the writer in five cases, and in seven where the dislodged bees have been removed to a distance, and as much as possible of the combs cut away. I fancy the bees in this case must be destroyed, and the easiest and most certain mode of effecting this will be to insert into every available crevice pieces of rag saturated with a strong solution of cyanide of potassium. This salt being, however, a dangerous poison, care is requisite in its application, and there is some risk in having it about you, but the vapour is very penetrating, and by it every bee may be destroyed. The man's services should then be called in requisition, and when the combs are sufficiently exposed they should be carefully and effectually excised. The present season is a suitable time to effect the operation, the bees being less numerous than at any other period.—G. FOX.

**HAYMAKERS BOUND HIVES (J. D.).**—Swathing hives with haybands or any other non-conducting material is beneficial in moderating changes of temperature. Three or four, given by means of an inverted bottle about twice or thrice a week as the weather permits, until the bees are able to provide for themselves, will probably be sufficient.

## POULTRY MARKET.—FEBRUARY 9.

The change of the season is coming on. Game is disappearing from the market, and we shall soon be dependant on the farmyard only.

	s. d.	s. d.		s. d.	s. d.
LARGE FOWLS	2	6	Partridges	0	0 to 0
Small ditto	3	0	Pheasants	0	0 0
Chickens	2	0	Pigeons	1	0 1
Geese	7	0	Hares	2	6
Ducks	0	0	Wild ditto	0	0 10

## COVENT GARDEN MARKET.—FEBRUARY 9.

We have experienced a large influx of out door produce, and rough vegetables are not so saleable. Forced vegetables are plentiful for the demand, which is not so good as usual at this period of the year. Cornish Broccoli is good, and our Continental supplies are also good, and now becoming reasonable in price.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	doz.	0 0	Mulberries	doz.	0 0
Apricots	doz.	0 0	Nectarines	doz.	0 0
Cherries	doz.	0 0	Oranges	doz.	0 12
Peaches	doz.	0 0	Guavas	doz.	0 0
Currents	doz.	0 0	Pears, kitchen	doz.	3 0
Black	doz.	0 0	Pears, dessert	doz.	3 0
Pine Apples	doz.	0 0	Pine Apples	doz.	0 10
Figs	doz.	0 0	Plums	doz.	0 0
Colts	doz.	0 0	Quinces	doz.	0 0
Guavas	doz.	0 0	Strawberries	doz.	0 0
Grapes, Hothouse	doz.	0 0	Walnuts	doz.	0 15
Leaves	doz.	0 0	Walnuts	doz.	0 15
Melons	doz.	0 0	Walnuts	doz.	0 15

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	doz.	3 0	Leeks	doz.	0 10
Asparagus	doz.	0 0	Onions	doz.	0 0
Beans, kidney	doz.	0 0	Onions, small	doz.	0 0
Broad	doz.	0 0	Peas, marrowfat	doz.	0 0
Brussels Sprouts	doz.	0 0	Parsley	doz.	0 0
Chicory	doz.	0 0	Parsnips	doz.	0 0
Capicorns	doz.	0 0	Potatoes	doz.	0 0
Carrots	doz.	0 0	Potatoes	doz.	0 0
Cauliflowers	doz.	0 0	Radishes	doz.	0 0
Celery	doz.	0 0	Spinach	doz.	0 0
Cucumbers	doz.	0 0	Strawberries	doz.	0 0
Endive	doz.	0 0	Tomatoes	doz.	0 0
Fennel	doz.	0 0	Turnips	doz.	0 0
Garlic	doz.	0 0	Vegetable Marrows	doz.	0 0
Horseradish	doz.	0 0			

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	FEBRUARY 17-23, 1870.	Average Temperatures near London.			Rain in last 45 years.		Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	in.	h.	m.	h.	m.	h.	m.	h.
17	Th	Meeting of Royal and Linnean Societies.	46.6	30.6	38.6	17	12	17	16	15	12	17	14	14
18	F	Length of night 13h. 50m.	45.2	31.1	38.2	17	11	7	18	5	23	8	14	48
19	S	SEXTAGESIMA SUNDAY.	44.4	31.0	37.9	15	9	7	19	5	25	8	19	51
20	Sa	Meeting of Entomological Society, 7 P.M.	45.5	30.7	38.1	14	7	7	21	5	18	11	23	51
21	M	Meeting of the Society of Arts, 8 P.M.	46.7	32.3	39.5	20	5	7	23	5	morning	4	21	52
22	Tu		46.8	31.9	39.3	19	5	7	25	5	9	18	10	53
23	W		47.4	31.5	39.4	14	1	7	27	5	5	1	22	54

From observations taken near London during the last forty-three years, the average day temperature of the week is 46.1°; and its night temperature 31.3°. The greatest heat was 58°, on the 21st, 1846 and 1859; and the lowest cold 2°, on the 17th, 1856. The greatest fall of rain was 0.51 inch.

## PINE-APPLE CULTURE.



OUR correspondents, Mr. Simpson and Mr. Record, have recently made some interesting remarks on the time in which they have found it possible and profitable to fruit Queen Pine Apples, calculating from the time that suckers are potted to the time at which these produce ripe fruit, and they invite correspondence on the subject—a request with which I take the liberty to comply.

I think it may now be termed almost "every-day" Pine-growing to ripen the fruit in twenty or twenty-four months; and I think it quite possible, and profitable as a rule, where there are good, light, well-heated Pine houses, to ripen the fruit in fourteen or fifteen months from the time the suckers are potted. In the summer of 1867 I potted a number of suckers from the Queen Pine Apples which ripened in June, and from these suckers cut ripe fruit in fourteen months, and I have no hesitation in saying, that as a rule, with good culture and light houses, that time is sufficient to produce 3 to 4 lbs. Queens, which, for ordinary purposes, is a very serviceable size. My experience has always been that the younger the plant the larger the fruit in proportion to the size of the plant, and *vice versa*. You may bid goodbye to fine fruit when the plants are mounted on a still of a stem.

The most important points of culture for speedy returns are first, to get a stout short sucker, and to keep it growing in as much light as possible, and with rather a minimum of moisture in both soil and air; above all, avoiding monster pots, and particularly in the case of Queens. It may be interesting to refer to an experiment I once made with the view of testing what could be gained by large pots. Thirty-six plants of the Smooth Cayenne and Charlotte Rothschild varieties, which I consider more in need of pot-room than Queens, were selected, and the eighteen finest plants were shifted into 15-inch pots, and the remaining eighteen were in 11-inch pots, plunged in the same bed, and in all respects treated alike. The following shows the result of the experiment when the fruit were ripe:—

FROM 15-INCH POTS.			FROM 11-INCH POTS.		
1 fruit	lb.	oz.	1 fruit	lb.	oz.
1 fruit	9	6	1 fruit	9	2
1 fruit	8	5	1 fruit	8	12
1 fruit	9	1	1 fruit	8	11
1 fruit	8	9	2 fruit each	7	10
2 fruit each	8	3	2 fruit each	7	11
1 fruit	8	2	1 fruit	6	12
1 fruit	8	1	1 fruit	6	10
1 fruit	7	9	1 fruit	6	8
1 fruit	7	7	2 fruit each	6	7
1 fruit	7	4			
1 fruit	7	5			

Though in these weights of twelve fruit from each size of pot the weights are in favour of the large pots, I do not consider anything was gained by the larger shift, as the plants in the 11-inch pots were decidedly less than their competitors at the time of shifting. Out of the thirty-six, seven fruit were under 6 lbs., and one under 5 lbs. They

were ripened between October and Christmas, and in 1867 I had nearly as fine fruit in 11-inch pots ripened at the same dull season, and which were potted rootless suckers in August, 1866; so that these stronger-growing sorts do not require much more time in which to do their work than Queens.—D. THOMSON.

The object of this paper is not to condemn Mr. Record's system, but simply to state my experience and opinion, and if others would adopt a similar course much might be learned that we cannot meet with in any one work on the Pine Apple. Surely the time is long past when good cultivators like to keep secret their success and experience.

That the Pine Apple can be fruited in less than three years is, I think, generally acknowledged, and I know no reason why it should not be fruited in half the time—namely, eighteen months. If Mr. Record can obtain 3 lb. fruit in one year, it is a step in the right direction, but he must have very large suckers to commence with, and have a 12-inch pot either full or well filled with roots in nine months, allowing three months for rest and ripening. If Mr. Record's system can be carried out, I hope to see this fruit grown again in all those places where it used to rank so highly. How melancholy it is on revisiting a place where the Pine Apple was grown to find its culture given up as too expensive!

I will now describe my mode of cultivation. Queens are the variety I grow most of, and I shall, therefore, confine my remarks to it. In August thirty suckers, or more, about a foot long, and stout in proportion, are selected. They are potted in 6-inch pots, plunged in tan, and no water is given for some time. The pit is kept rather close at first, watering with warm water when wanted, and avoiding extremes. Should the weather be fine and sunny, a slight shading is used, at the same time damping the walls and passages to encourage rapid and sturdy growth, also the tan or plunging material. I never damp overhead at any stage. I preserve a temperature of from 75° to 80°, with sun, and a bottom heat of 90°, as at this stage there are no roots to burn. As the season advances the temperature is lowered.

In February the suckers will be all well rooted, and they are potted in 8-inch pots. The plunging material is turned over, and if there is not sufficient heat, I add a little fresh material. They are plunged and kept growing until August, with an increase of temperature in the summer months. It does not hurt the Pine Apple to be shut up at a temperature of 120° in the afternoon, for two or three hours, if a little air be given all night.

In August I shift the plants from 8-inch to 12-inch pots, and in these I fruit them. They are taken into the fruiting store, and encouraged to fill the pots with roots, which will be accomplished, if all go well, by November. The temperature is then lowered, water withheld for some time, and then a good watering is given, the water used being warm, not hot, and the bottom and top heat increased. In January the most of the plants will "throw up," and in June and July the greater portion of the fruit will be ripe.

Thirty plants are all I have room to fruit here, allowing

2 feet between each plant. I have fruited forty in the same house, but nothing is gained by crowding. The bed in the fruiting stove is 24 feet long, and 6 feet wide. To grow plants for a house of these dimensions a pit 18 feet long, with a plunging space 1 foot wide, is wanted, 6 feet by 4 being for suckers, and 12 feet by 4 for advanced or succession plants. My pit is larger than this, and is divided by a wooden partition; one end, where the plunging material is nearer the glass, I use for the suckers.

I agree with Mr. Record that for growing the plants to the fruiting stage, nothing is better than Oak leaves for bottom heat, and a lining of stable manure for top heat, if in frames.

The foregoing system I have practised here for seven years, but I confess the average of my Queens has been 24 lbs.; in 1866 I had ten fruit each weighing upwards of 3 lbs., and one of 3½ lbs. These had small crowns—what I call small is a crown of from 2 to 3 inches for a 3 lbs. fruit—and I consider a 3 lbs. fruit with a crown a foot long anything but what it ought to be.

I again agree with Mr. Record that age has not much, if anything, to do with the size of the fruit; for I have had plants which refused to fruit in from eighteen months to two years, but they were none the better for the long time they had taken, the fruit being, if anything, smaller than that from plants not grown so long.—C. M. McC.

### ROYAL ASHLEAF POTATO.

I WILL once again, with your permission, disclaim any right to my name being prefixed to this well-known Potato, as in page 58, by Mr. Fenn. In so doing I know well that he has merely copied the advertising seedmen of the present day, so eloquent about Potatoes; they are, of course, not authorities with regard to nomenclature, so that I have not thought it worth while to clear myself of the indirect charge of appropriation. It is quite a different matter with Mr. Fenn, who is a classic in Potatoes, and should not be allowed inadvertently to quote an error without friendly notice. The truth is, the Royal Ashleaf Potato is not mine, nor was its creation ever claimed by me. Its history, which I published when it was first sent from here (Sawbridgeworth), is as follows:—

Some year or two prior to 1860 I was on a visit to the late James Ashwin, Esq., at Bretforton Hall, near Evesham; he was an enthusiast in horticulture and agriculture, but at the time I refer to he had a great passion for orchard-house culture. On passing by some Potatoes he asked me if I had ever raised any seedlings in the course of my practice, and added that those I saw at our feet were seedlings raised from the old Ashleaf, and that they might prove of value. He had distinguished them as A, B, and C, and told me I was welcome to some tubers; these I received in the autumn. I found A was quite a curiosity, a true Ashleaf in miniature, not growing more than 6 or 7 inches high, and bearing a cluster of beautiful tubers. In the wet summer of 1860 this charming variety perished from the disease. I need not say how much I now regret it, for it would by this time have been in every good garden as a winter Potato to grow in pots in forcing houses. B and C proved most robust and distinct, and one day attracted the notice of Mr. John Spencer, then of Bowood, who was walking with me. I at once called a workman to examine their roots, as they looked so promising. The end of it was our decision in favour of B, as the tubers were more regular in shape than those of C (I am quoting from memory). B was accordingly selected as a good Potato, and as Mr. Ashwin was deceased, I decided to call it the Royal Ashleaf, fearing that the relatives of Mr. Ashwin might object to the prefix of his name.

With regard to my own choice of Potatoes, it has settled down to very narrow limits. My first crop is the Early Ten-week, the oldest and the earliest of all. 2nd, the Old Ashleaf (true), the finest in flavour of all the race, but rarely found pure. 3rd, the Royal Ashleaf. 4th, the Lapstone, or Haig's Kidney. This sort I received from Messrs. Backhouse, of York, more than twenty years since. These four kinds supply my table from May till May in the following year, and are always good. Mr. Raddlyffe has kindly sent me a few of the Yorkshire Hero, and also some of Pebbly White, both of the Lapstone race, which is so remarkable for its fine flavour. It may be to the peculiar soil of here that the excellence of the above kinds is owing, for in some cases it is sandy loam resting on sand, clayey alluvial loam resting on gravel, and the same

resting on the boulder clay, all highly calcareous. I have tried many kinds, nearly all of which have proved failures with respect to flavour, and I have come to the conclusion that all those who love a good Potato should try several kinds, and ascertain which suits their soil before they cultivate any sort to a large extent.

Mr. Raddlyffe's calcareous soil seems to suit the Kidney Potatoes, and those who can grow them well would not eat any round variety for a continuance.

The Early Ten-week is in use here for about a fortnight, and then adieu to the Rounds. It is strange to see the Early Rose Potato puffed as it was a year or two ago in America. Neither that nor the Early Goodrich are early, second early, or eatable, when grown in my soils. I strongly suspect that the dry, hot American climate will not admit of the cultivation of our fine Ashleaf varieties, or they would never boast of such an inferior sort as the mis-named *Early Rose*, so insipid, so late, and so coarse, that one must be in a state of Potato hunger to eat it.

The Ashleafs, as far as I can learn, seem to attain to great excellence in calcareous soils, for in the neighbourhood of Bath the market gardeners sell their baskets of Royal Ashleafs more readily than those of any other kind; to use my informant's term, "it was a fortune to them."—THOS. RIVERS.

### TANKS FOR BOTTOM HEAT.

I HAVE seen several questions asked in "our Journal" as to the best way of making tanks for bottom heat, and have strongly dissented from the answers given. I have four tanks now at work, and have had five, but with my present experience I would never make another. I think they answer no purpose which cannot be as readily effected by pipes at less expense. But the most serious objection to tanks is the constant trouble, annoyance, and expense they occasion. If built of bricks and cement, the constant contraction and expansion caused by the change of temperature will always crack them, and this generally occurs when it is most inconvenient to repair them. After many repairs I did away with one tank of this kind, and covered two others with lead; this is nearly twenty years since. Lead is expensive, but at least I argued it would be safe. Here I was mistaken, as all know who have had to do with a lead-covered roof. I think one of these tanks has been repaired every year once, and often twice, since it was made, and the other nearly as often. The expansion of the lead cracks the solder. About the same time I had one iron tank made, or rather two wide east-iron troughs connected together by pipes. These I thought were cast unnecessarily strong; but it was a good thing they were strong, for I have been quite surprised at the way they have rusted. Finding they did not work well lately, I had them examined, and found the return pipes connected with them almost filled with oxide of iron.

Now, I contend that the best from these tanks is in no way superior to what I obtain from beds heated with pipes. The common idea is that a bed over a tank is damper than one over pipes, but this is quite erroneous. If you cover a tank with slates, a bed of leaves or soil resting upon them will become as dry as dust if unwatered, as I can show anyone, and the same with pipes. But even if this were not the case, evaporating troughs on the pipes would produce the same effect. To any one thinking of building a tank for any purpose except the growth of aquatics I say, Don't. With a tank, the more regular the temperature at which the water is kept the less danger of leakage; and as a tank for the growth of plants is never very hot and ought never to be cold, lead ought in such a case to last for many years. But a tank which is sometimes cold and at other times filled with almost boiling water must crack, whether built of cement or lined with lead.—J. R. PEARSON, *Chilwell.*

### DOES THE ELM IN OUR WOODLANDS PRODUCE SEED?

THERE has been an argument in "Science Gossip," between a lady friend of mine and Messrs. Holland and Britten, concerning the Elms of our woodlands (*Ulmus campestris*), perfecting their seeds when growing in cultivated soil. Messrs. Holland and Britten have made it appear that this has never been the case, and the former says, "And very seldom show any signs of fruiting at all." The author of the fact informs me that she has frequently noticed instances of the Elm fruiting when growing in cultivated soil, and she has written to ask me if I

have, and if so, if I would mention it in "Science Gossip," but as I had not noticed this myself, can you oblige through your correspondents' columns?—G. N.

## FRUIT-GROWING IN FRANCE AND ENGLAND.

No. 4.—PEARS.

ON no subject has the horticultural battle more strenuously raged than on the vast superiority, as it was alleged, of Pear culture in France as compared with the culture of the same fruit in England. Now, into the merits or demerits of this controversy I have no wish to enter. Many of the points in dispute are of little moment in whatever way they may be decided. My object was not so much to enter into these points as to ascertain the profitableness or otherwise of Pear culture about Paris as compared with that round London, and whether the system of training was such as to necessitate an alteration in our method. To ascertain these points I visited not only some of the largest fruit nurseries about Paris, but some of the most celebrated gardens of amateurs, especially those of M. Nallet, of Brunoy, and M. Chardin, of Chatillon. My decision is arrived at, not merely from my own observation, but from the statements of those gentlemen who, I suppose, will be allowed to be the best judges on the point.

Let me, then, describe first these two gardens, which, I may say, places of pilgrimage to all those who, interested in pomology, care to see what can be seen in Paris regarding it. M. Chardin, to whom my good friend M. Jamin introduced me, is an engraver; having acquired a competency for himself he has retired to Chatillon, and there, amidst his trees, his life is spent. Nothing more curious than this garden can possibly be conceived. Pears, Pears everywhere; Pears trained in all sorts of ways—palmette, pyramid, upright cordon, oblique cordon, all are there—on walls, on trellises, alongside of walks, trained over walks, forming arbours, in fact, in every possible way that Pears can be grown. They are grown alongside of the walks; about 4 feet from the path, iron trellises are run, sometimes reaching 12 or 13 feet in height, and up these the Pears are trained; then some shoots are allowed to lengthen, and are trained overhead. It may be at once gathered from this that the garden is in a very sheltered position. It has, moreover, a thorough Pear soil, that rich unctuous loam in which the Pear rejoices, so that M. Chardin has every advantage. Moreover, he is an enthusiast; his garden is his child: it receives his first attentions in the morning, his last at night. At 4 and 5 A.M. he is in it, and is only driven out by the darkness. For neatness, for beauty of training, and for general effect in its own peculiar way, this garden is unique.

The garden of M. Nallet is somewhat different from that of M. Chardin. The soil is not so good, the situation more exposed, and the position of the proprietor is likewise to some extent different. "It was not very easy quite to understand what that was. He gives lessons in fruit-training and pruning at certain times, and he looks to making something out of his garden, and yet he is to some extent an amateur. His garden is much larger than M. Chardin's, and his collection of Pears very numerous. The various systems of training are here also carried out in great perfection. Perhaps the most interesting were the pyramids in the form of a cordon, where stout iron rods are used to give the shape, and the branches are tied as they grow to the iron framework. This gives a greater current of air and more light than when the pyramids are grown in the ordinary method; at the same time I would add that I saw, shortly after my return home, in the grounds of the Duke of Norfolk at Arundel Castle, pyramidal Pear trees which had been obtained originally from Mr. Rivers, of Sawbridgeworth, on which there was a crop of Pears as numerous and as fine as any that I saw at either M. Nallet's or M. Chardin's. The palmette Verrier seems to be the favourite form, and, as this has been so frequently described, there is no necessity for saying anything further on it. It is a modification of our English system of training, whether adopted independently or not I do not know; and I think it has the advantage of ours in some respects, as being likely to afford a more regular flow of sap to all the branches.

When I had gone through these gardens and the nursery of M. Jamin, the questions to be answered were first as to training. The oblique cordon can never, I think, be more than a ready way of at once furnishing a trellis or wall with a variety of Pears; for such a purpose it is well adapted, but I very much question whether, for all that, we shall see it largely adopted

amongst us; when we have walls with a southerly or westerly aspect we are more inclined to cover them with Peaches and Nectarines than with Pears, although the latter are a more certain crop. The palmette Verrier is, as I have said, a beautiful form of tree, and from what I saw we might advantageously copy it either on trellises or walls; but after all the question which most concerns us is this, Does this system pay? Do all the pains, care, and skill bestowed on these trees return to their owner an adequate recompense? Now, on this I have conclusive evidence. M. Nallet, when I asked him this question, said, "Decidedly not. If," he said, "I could grow only such kinds as Doyenné d'Hiver (Easter Beurré), and Bergamotte d'Espere, which would come in late in the season, then they might; but I cannot grow these except on the wall. When I send Pears in early in the season the market is so full that I get nothing for them." And in talking to M. — in the Rue du Maréchal St. Honoré, he distinctly said that the finest fruit that he had to sell did not come from these highly trained trees; in fact, it is not the neighbourhood of Paris that supplies the fine fruit that we see in the fruiterers' shops in Paris, or that come over to our own Covent Garden; we must go further south, to Tournai or Arjon. When I was at Angers some years ago, in the month of October, I saw immense quantities of splendid fruit, which were being gathered for transport to Germany, Russia, and even America; and M. Leroy, I remember, told me some astonishing statistics of the number of tons weight of Pears annually exported from that part of France. There, with a brighter sun and more favoured atmosphere, the finest varieties ripen on pyramids and bushes; and let all those who, captivated by the extreme neatness of appearance of these French trees, think of "going in" for a trellis or wall on any of these systems, consider that it involves much more trouble and constant supervision than the bush or pyramid system. It will not do to put this up and give it up to your gardener with the idea that he will thank you much for it; he can tell you already what time it takes to train the trees he already has on his walls, and this entered upon to any extent must inevitably entail additional aid. For myself, I say decidedly that I should be quite satisfied with such pyramids and bushes as I have seen a hundred times in English gardens; and that while we may learn a great deal theoretically and scientifically about the pruning of the Pear, I very much doubt whether this system will supersede ours, and that, not because we are so "entire" as to prefer our own simply because it is our own, but because, taking all things into consideration, it is more likely to be profitable.—P., Deal.

## CONIFERS DEPRIVED OF THEIR LEADERS.

HAVING lately planted ornamental Conifers to a large extent, and being much interested in their treatment, I send a few remarks, which may be corroborated or refuted by some of your readers.

There is a general prejudice that losing their leaders is a detriment to ornamental trees of the Spruce tribe. No doubt it makes a great difference whether the loss is due to weakness in the tree or to accident, but the question I wish to raise is whether in either case it is any advantage to rear a new leader artificially, and whether trees of this kind may or may not be improved by having their leaders cut off? Perhaps the most ornamental of the newer species of Spruce is the Abies Nordmanniana. This seems to have a disposition to become blind in the leading shoot, and to change its leader. Several trees of it in New gardens have at present side shoots artificially trained and tied to make leaders. The species is remarkable for the luxuriant beauty of its lower branches, which are its most ornamental feature. In the garden of Mr. Pearson, of Chilwell, near Nottingham, I lately saw two plants of A. Nordmanniana, one of about 12 feet, the other about 9 feet high, the smaller by far the handsomer and better-shaped tree. That gentleman told me they were formerly an exact pair, that when about 3 feet high his son had cut one in two with a scythe at about half its height, and that he had left it to take its chance, doing nothing at all to it. It soon spontaneously formed a new leader from the end of a side branch. The branch gradually elevated itself, and now the place where it was cut in two cannot be distinguished.

Mr. Pearson told me on the same occasion that the garden of the Rev. J. Robinson, Rector of Widmerpool, Notts, is conspicuous for its ornamental Norway Spruces, which are remarkable for the luxuriant spread of their lower branches, and

have been treated in the following way:—Mr. Robinson, who has been in possession of the place for about fifty years, accidentally discovered the ornamental effect produced by Spruces being topped. He therefore adopted the plan of cutting them off at about half their height when 10 or 12 feet high. Mr. Pearson saw them there in every stage of recovery, until after a few years the point of section was no longer visible.

It is probable that of your readers some will not believe this account, others will accept it in a modified form, but none will proceed to treat all their ornamental Spruces in the way suggested. I am anxious, however, to know whether any of your readers can confirm it by personal experience.—C. W. D.

### HOT-WATER BOILERS.

I am one am exceedingly obliged to Mr. Peach for his papers on this subject. There are many things one takes for granted, and never thinks about, much less do we think of calling in question the generally-received opinions upon them. That water could not with any effect be heated from above, seemed to me so self-evident, that I must say I felt quite startled when I heard Mr. Peach's opinion on the subject. When he paid me a visit he was so short a time with me that he did not enter into reasons, and did little more than say very decidedly that the general opinion was quite erroneous. Now, though I felt he might as a clergyman be in a position to speak *ex cathedra* on some subjects, I thought he was hardly likely to enlighten me on the subject of heating by hot water, as few have had more practical experience than I have had. As to the science of the matter I believed it so simple that I had nothing to learn. Now, I am free to confess this was an entire mistake on my part, which I shared with most persons who thought themselves best informed on everything connected with boilers and hot-water apparatus.

It is quite clear we have not taken into account the difference between water in motion and water at rest. Knowing that water heats by convection, that the hottest particles being the lightest will not descend, it has always been taken for granted, that a fire passing over a boiler acted only as a warm jacket, to prevent the escape of heat, and had little or no effect in warming the mass of water beneath, and in the case of steam boilers, I think this reasoning is correct; but in a boiler through which water is circulating, it is certainly a mistake to suppose the same reasoning applies. We all know that heat radiates downwards; the top of a boiler over which a fire is carried must, therefore, be heated. Now, if the flow-pipe rises, as it ought to do, from the top of the boiler, it is manifest fresh particles of water must be constantly brought in contact with the under surface of the top of the boiler so made hot, and as a matter of course will receive heat as they roll along in contact with it. As they rise in the flow-pipe, others will take their place and be heated in turn. This all appears so self-evident when one thinks upon it, that the wonder is we did not all see it before.

An independent thinker, like Mr. Peach, is a great acquisition to "our Journal," and I for one am almost as pleased to be set right, as if the first publication of the idea had been mine—not quite, but nearly so. It is to be hoped he will often favour us with his ideas. If he upsets received notions he must not expect to convince everyone, but I hope he will take it for granted some are willing to be set right.—J. R. PEARSON, *Chilwell*.

### ESSAYS ON FLORAL CRITICISM.

I CANNOT understand why Col. Scott should have mounted his charger and put his lance in rest to bear me down, because I asked a simple question. On referring, however, to the report of the Society's meeting I see that he charged Mr. Godson somewhat in the same manner. I suppose I must set it down to his *air militaire*.

1. Col. Scott calls me a severe critic of the construction and action of Floral Committees. Will he be kind enough to tell me when I have ever found fault with the action of the Floral Committee? Its construction and the manner in which it is manipulated by the Council I have written against, and apparently with some effect.

2. Does Col. Scott imagine that the fact of the Council of the Royal Horticultural Society having the examining of the essays is one likely to inspire confidence in the competitors? If so, he must have grievously mistaken the signs of the times.

3. Col. Scott requests me, without any "unnecessary in-

sinuations," to give my opinion on certain points in connection with the subject of his essay. I do not know what he means. I am apt to say what I mean, and not to insinuate. I must therefore decline to answer his question, and shall certainly not now include myself amongst the number of competitors for his prize.—D., *Deal*.

### BEEF-ROOT LAST YEAR.

At page 113 of "our Journal," the Rev. C. P. Peach solicits the experience of others as regards Beet, and its cultivation during the past year. As with other things, so with Beet, there is a variety of opinions as well as of kinds. Some prefer red Beet, while others prefer crimson Beet. I am an adherent to the latter, and think that crimson Beet is far preferable, and I believe, in general, more appreciated.

My experience for last year is, in the last week in April, I sowed Dewar's, Henderson's Pine Apple, and Carter's St. Oyst. Beet, on well-prepared moderately rich ground, in rows 1 foot apart. When the plants were large enough to transplant they were thinned out, leaving the plants in the rows 6 inches apart. I planted what I wanted, and though we had a very dry summer, by constantly stirring among the plants and keeping them free from weeds, we had a most excellent crop of well-formed roots. Those of Dewar's variety were the most perfect in shape, but I should give the preference to Carter's for colour. The three kinds were pretty equally balanced as regards quantity.

Whyte's Black Beet is the deepest crimson Beet I have seen, but it is of very rampant habit, and rather coarse. It is very apt to run to seed, unless it is late-sown, and then in case of autumn frosts it does not attain perfection with us. It should be grown in poor soil. Carter's and Nuttall's are useful kinds, and have their admirers, as have many other good kinds; while some say, "Give me Lindsay's Beet, and you may do what you will with the others." I have had no experience with Beta chilensis; therefore, I am not in a position to offer an opinion about it.—M. H., *Adlam Hall, Studdesborough-on-Tees*.

In reply to the inquiry made by your correspondent, as regards this root, I have the pleasure to inform you that we were very successful in this crop last summer. The seed was put in on the 9th April, and the plant was dressed with four or five dressings of sewage. The return from half an acre was £28 9s. 7d.—HENRY J. MORGAN, *Lodge Farm, Darking, Essex*.

### CISSUS PORPHYROPHYLLUS.

This fine climber is a native of the East Indies, and when grown well I think it is as beautiful as *Cissus discolor*. It is not so often met with as the last-named, but when grown, as I will describe, it presents a most chaste and attractive appearance.

I have found it valuable for the decoration of the stove; and on the dinner-table, beneath the chandelier, it is perfection.

It is rather a slow grower, and has slender stems rooting at the joints, clothed with foliage of a brilliant emerald green in the young stages of growth, changing as it becomes older to a rich purplish green, covered all over the surface with blotches of pale pink.

As being a slow grower I consider an advantage, as it is handy to use for the decoration of the dinner-table.

It requires to be shaded from the rays of the sun; to have a soil compounded of peat, loam, and leaf mould in equal quantities, and a liberal sprinkling of silver sand added. I grow my plants in 5-inch pots, and train them as pyramids about 20 inches high. My plan is as follows:—

I take a 5-inch pot, drain it well, and then fill it with the compost. I usually put in two plants, one on the opposite side of the pot to the other. When established I take some small rods to form my pyramid, I then place sphagnum moss outside, and fill up with compost. I build it up neatly to whatever height I require, and then train my plants round that pyramid. It makes a beautiful specimen.—F. P. L.

**CORRECTION OF THERMOMETERS.**—For the information of your correspondent "VERITAS," and probably many more of your readers, respecting the verifying of thermometers, I beg to inform you that the charge for verifying thermometers at Kew is 1s. "VERITAS" has only to send the thermometer and the stamps addressed to Dr. Stewart, when the instrument will be

returned in a few days with a certificate of verification, with some other valuable information respecting mercantile thermometers; but only those instruments that are divided on the stem or tube will get a certificate, as they are verified unmounted. The address is, "Kew Observatory, Richmond, London, S.W."—J. BRYAN.

## OUR TREES.

Of all Nature's gifts to man, gifts which make beautiful this world of ours, none are more rich or varied in aspect, or longer life-enduring than our trees. They possess a magnificence, a wealth of beauty, with which even our choicest flowers may not compare, for the beauty of these flowers is but for a short time; a few hot summer days, a touch of frost, a cold rainy wind, and it is faded, gone for the season. The golden Wheat, or the bearded Barley, waving over acres of sunny slopes beneath a soft blue sky, has a glory we reverently acknowledge, as we stand and look and wonder; but then how soon the "harvest home" echoes over the hills, and of our bright picture nothing is left but the brown soil. Yet our trees, like tried friends, are with us through all seasons—nay, season after season, stretching far back into remote times, a part of our history, and yet living with us to-day—strong, and green, and fresh, and wide-spreading, the old resting thankfully beneath the shade of the same trees generations of their forefathers played under when children—trees which retain through the passing years (how many, they with a strange inward fidelity never forget to count) a beauty which is dear to our English hearts—so dear that we associate them with the greatest events of our lives. In joy we plant the young sapling to mark the gift day of a new life. And royal hands sometimes deign to leave such mementoes of a passing visit to keep their memories green. We plant them not always wisely, nor well, and often much too near the new homestead; but how they are watched, and guarded, and cared for, and loved, only the planter knows. Then, too, how they grace our mansions! What, indeed, would the stately homes of England be without the old ancestral trees—the old trees that have grown for so many years side by side, intertwining their spreading branches under and over each other, until they have made a roof of living green, through whose density the June sun cannot penetrate, and in whose mysterious gloom night gathers before the day is done.

The dear trees! They stand by our quiet homes with a solemn presence, companions we should grieve to part from. They adorn the wayside cottage, hiding its unsightliness, refining its roughness. They are on our lawns, sweeping their long leafy branches in regal state over the soft green grass, and wooing the mosses to put on their brightest emerald. They are on the high hills, sturdy and strong, playing with the summer breezes, battling with the winter winds. They are in the shady lanes, and the sheltered valleys, where the silver Ditchwort and the blue Hysynth spread over their tangled roots and make glad the sunny banks. They are by the sides of the murmuring rivers, looking down into the shining depths, and answering back with a sweeter murmur. Where beauty is they increase it tenfold; and to the least interesting spot, what a charm they impart of light and shade, of life and motion! They are said to be large consumers of the elements of life, careful of their own needs, gathering from the soil, from the sunshine, and from the rain-cloud more than enough; yet they are most generous returners, they give back far more than they take, often turning the evil into good—so much so, that the man is considered worse than a heathen who shall dare to injure or destroy the town tree, however poor and miserable its appearance may be.

Then, too, they are of most ancient lineage; they claim kindred with the marvellous gigantic growth of thousands and thousands of ages ago—that wondrous sunny growth which is working in our factories now, the centre power of movement, the helper of science in her mighty progress, the warmth of our churches, the first comfort of our homes, and the keeper-alive in our northern climes of Flora's sweet gifts, whereby we are enabled in gladness to place flowers on our Christmas-day altar.

How cold, and bare, and unproductive would our island be if there were no trees, either for use or ornament, no long thick plantations to shelter our houses and gardens from keen biting blasts; no noble parks for the deer to wander through; no old woods for the birds to chant forth their melody in, nor for the squirrel to gambol in in safety. How would the cruel east wind sweep with unbroken power from shore to shore, and everything with life snuff from its unsoftened influence!

After dwelling for a long time in the midst of a large town, when we escape into the open country, how our hearts leap for joy when we catch sight of our favourite tree, be it patient Oak, or graceful Ash, or silver Birch, or touch-me-not Walnut. They have from us a great welcome; we never tire of their presence. How they bud and bloom, and drop their foliage, and are never quite bereft of beauty, for even when leafless they possess a symmetry of form, a peculiar individuality of character, never separated from their natural gracefulness. And in all their many changes, and these are ever recurring, they never change beyond recognition; even in the stern winter time, which we are prone to speak of as lifeless and joyless, when Nature wears her greyish garment, they are our greatest ornaments; they stand out boldly in the clear frosty air pointing their silent fingers to the cloudless sky, or they make a fine network of interlaced twigs, through which the moon looks down upon the snow-covered world. Yes, through all seasons they retain their interest; they battle bravely with the winter storms, and wait patiently until the hard stone-like soil has warmed and softened; then, like magic, they burst into rapid growth, not here or there by dital temper, but everywhere wondrous revelations; myriads of clustered leaves of soft delicate tissue, and various shades of colour, proclaiming with a hymn of gladness to which no ear is deaf the new world of beauty, the awakening-up out of the long sleep of rest.

And is there not a beauty of the trees when summer comes with her firmer tissues, her darker hues, and larger growth, and strange moving shadows over field and garden, and wayside? And when autumn comes, what can equal the glory of our trees? How they change spring's hymn of gladness into one richer and deeper—of thankfulness, Nature's very jubilee. How suddenly, as by fairy wand, they turn all their sombre foliage into bright leaves more deeply coloured than ever Millais painted. And when winter comes in earnest, and the hoar frost and the silent snow fall down upon the trees, covering every branch, and twig, and leaf with a garment of pure glittering white, what of all Nature's yearly gifts to man can equal the dazzling beauty of the ghost-like trees?—MARC.

**EASTER BEURRÉ PEAR.**—I have sent this morning a small box containing a few fruits of the Easter Beurré for your inspection, being a fair sample from a tree growing on an east wall, which produces a good crop every year. In fact, in this locality we consider it one of the best late Pears we have, although it may and has a slight tendency to become mealy when overripe, also to ripen rather sooner than we would wish; still, as far as my experience goes, it is worthy of a standing with any of the late kinds, and does remarkably well with an eastern aspect.—B. GORDON, *The Gardens, Chipstead, Kent.*

[The Pears were very fine, and full ripe. Send your notes on Camellia culture at the same time as you send the specimens.—ERS.]

## ROYAL HORTICULTURAL SOCIETY.

It will be seen from the report of the annual meeting of the Royal Horticultural Society, which we published last week, that the beginning of the end of Chiswick has come. This is an event which all who knew anything about the matter have for some time looked forward to, and one, also, for which some provision had to be made at no distant date. In some ten or eleven years the lease of the garden, held under the Duke of Devonshire, will terminate, and, *volens nolens*, the Society must then have relinquished the garden. Circumstances not by any means new to the Society have, however, hastened the consideration of the abandonment of Chiswick. The expense of maintaining it is said by those in authority to be greater than the Society can bear, and if the Society is to exist at all it must be disbanded, and this right hand must be cut off. It is a bitter pill to swallow, but sooner or later it had to be done, and this is thought the best time to do it.

This is not a subject upon which there is but one opinion, for there are many, and these too well grounded, some of them; but the answer to all is the total inability of the Society to maintain two large establishments. Horticulturists then say, Why not let Kensington go? for though the Society has expended £120,000 there, it has not a stick or a brick it can call its own, while at Chiswick it has its houses and plant collections, and the finest collection of fruit trees to be found anywhere. The answer to this is, that a new garden is to be obtained, and will be secured, before Chiswick is given up, so that the trees, and plants, and structures, which are of value to

the Society, will be transported thither, and the old garden will be maintained just in such a condition as to keep everything in proper order at the lowest possible expense. It is this assurance by the Council that a new garden will be provided that reconciles a large portion of the Fellows to the course that has been determined upon, and we trust that no unnecessary delay will take place, so that many who are incredulous enough to believe that no new garden will ever be made, will have their fears dispelled, and their allegiance to the Society doubly strengthened.

**FRUIT COMMITTEE, February 16th.**—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Thomas Bray, gardener to E. A. Sandford, Esq., Nymebad, Wellington, Somerset, sent a handle of forced Asparagus of very superior quality, to which a special certificate was awarded. Messrs. E. G. Henderson & Son sent specimens of the Egyptian Red Beet, a small Turnip-rooted variety, well adapted for growing on shallow soils. These were grown broadcast like Turnips. The colour in some of the specimens was excellent, but there was an evident tendency in others to go back to the Bassano. With careful selection this may be brought to a more fixed character, and thereby prove a valuable variety. The Wellington Long Red Beet was of excellent quality, and was considered an excellent stock. A letter was read from Messrs. Batley & Silverlock calling the attention of the Committee to a decision come to last October, that the Bedfordshire Champion Onion is a good stock of the Globe. Specimens were exhibited at this meeting, and after considerable discussion the Committee decided that they saw no reason to rescind the decision formerly come to.

Mr. Meredith, of The Vineyard, Garston, near Liverpool, sent a basket of very handsome Grapes, consisting of Muscat of Alexandria, Alicante, and Lady Downe's, to which a special certificate was awarded. He also sent an enormous bunch of a seedling Grape called Child of Hale, raised by crossing Syrian with Muscat of Alexandria. It has all the appearance of Syrian.

The Rev. George Kemp offered two prizes, one of £3 for the best, and one of £2 for the second best three dishes of each, winter dessert Apples and Pears, for which there was strong and close competition. Mr. Parsons, of Daresbury, obtained the first prize with Flat Nonpareil, Wyken Pippin, Cockle Pippin, Ne Plus Meuris, Jos-phine de Malines, and March Bergamot; and Mr. Garland, of Killestoun, Devon, was second with Sturmer Pippin, Royal Russet, Hubbard's Pearmain, Winter Nellis, Louis Moreau, and Bergamot Espere. The other competitors were Mr. Andrew Lee, of Leonardlee; Mr. Gardner, of Eastington Park; Mr. Cox, of Redleaf; and Mr. E. A. Smith, of Redleaf.

The Society offered prizes for the best three dishes of desert Apples, for which there was also a strong competition. Mr. Ross, of Welford Park, took the first prize with Scarlet Nonpareil, White Nonpareil, and Caraway Russet; and Mr. Lynn, gardener to Lord Boston, at Hedsor, was second. The other competitors were Messrs. Saul, of Stourton; Gardner, of Eastington Park; Ford, of Leonardlee; Garland, of Killestoun; Wallis; Parsons, of Daresbury; and Cox, of Redleaf. The Society's prize for the best three dishes of desert Pears, Mr. Wells, of Holme Lacy, was first, and Mr. Garland second. The other competitors were Mr. Cox and Mr. Ford.

**FLORAL COMMITTEE, February 16th.**—Rev. J. Dix in the chair. Owing to the coldness of the weather there was on this occasion a smaller show than usual, still there was a better display, especially of Orchids, than could have been expected under the circumstances. Prizes were offered for six Chinese Primulas, for three Delytras, and for six Lycopodium. Of Chinese Primulas two sets of six were exhibited, the one by Messrs. F. & A. Smith, of Dulwich, the other by Mr. A. Wilkie, Oak Lodge, Kensington. Messrs. F. & A. Smith, whose varieties were all named, had well-bloomed plants of a double pale flesh-colored kind, opening white, and with handsome Fern-like foliage; two free-flowering, pretty, double, bluish white varieties, named Candishiana and Lucania; Rabais, double salmon pink, a large and showy single lilac purple, with a yellow eye, and a double flower similar in colour but somewhat lighter. Mr. Wilkie sent single white and purplish lilac varieties. The first prize was awarded to Messrs. Smith, the second was withheld. Messrs. F. & A. Smith also exhibited a collection of single and double varieties, including two of the above, and one in which the margins of the lilac purple petals were streaked with white. A white-flowered variety, called Parity, also shown by Messrs. F. & A. Smith, had large, double, pure white flowers, which are said not to change colour with age. The leaf-stalks being red, it has probably originated from one of the red-flowered sorts. *Primula sinensis filicifolia hermesina*, with salmon red flowers, was a fine, large-flowered, single variety, said to reproduce itself from seed. Of *Delytras* there was none shown, and of *Lycopodium* only one collection, which came from Messrs. Veitch, to whom a first prize was awarded. The collection consisted of *Lycaste alba*, with beautiful rose-like white flowers, the remainder being *Lycaste Skinneri gigantea* and other varieties of the same species, varying in the depth of colour and markings, and having from five to eleven blooms.

Mr. Stevens, of Ealing, sent a numerous collection of seedlings of *Cyclamen persicum*, some of which had large and brilliant-coloured blooms. From Mr. Ware, Hale Farm Nurseries, Tottenham, came a small collection of *horbacones* plants, consisting of baskets of *Hottotia* or *Spirea japonica*, a double yellow Wall-flower, *Iriza reticulata*, very pretty, and *Primula Fortunei* or *crossa*.

Mr. D. T. Fish, gardener to Lady Cullum, Hardwicke House, Bury St. Edmunds, sent *Meconitis dissitiflora*, which had been flowering with him since the middle of January, but the specimens shown were in a drooping condition. Mr. S. Ismay, gardener to the Hon. W. O. Stanley, Penrhos, Holyhead, sent a new hybrid between *Libonia floribunda*, also known as *Abutilon vexillarium*, and *Sericographis Ghiesbriantiana*. It was called *Libonia parthesiana*, and its flowers have the yellow tinge of the *Libonia*, and the scarlet tube of the *Sericographis*, though not so bright, while the leaves are larger than those of the *Libonia*, and smaller, and of a darker green, than those of the other parent.

From G. F. Wilson, Esq., Heatherbank, Weybridge, Meath, came several flowers of Japanese *Chrysanthemum* that show how long they continue in bloom. Mr. Hubbard, gardener to O. O. Wrigley, Esq., Bridge Hall, Bury, Lancashire, sent beautiful cut blooms of *Lycastes* and *Coleogyne cristata*, and of *Goodyera Dawsoni*; also *Sarracenia Drummondii rubra* and *S. purpurea nigra*, the former having the appearance of being marbled with white on a blood red ground; the latter with a dark purple pitcher, more like that of a *Nepenthes* than of a *Sarracenia*. Mr. Thomas Burnett, gardener to W. Terry, Esq., Peterborough House, Enlham, had a special certificate for a large and beautiful flower specimen of *Coleogyne cristata*, whose fine racemes of white and yellow flowers produced a magnificent effect. From Mr. Lawrence, gardener to Bishop Sumner, Exmouth Castle, came *Cattleya Trianae Laurenciana*, a fine variety, and others of the same species.

The great feature of the day was the grand display of Orchids made by Messrs. Veitch and Mr. Denning, gardener to Lord Lonsborough, a display highly creditable to the courage of the exhibitors in bringing their superb plants out in such weather.

Messrs. Veitch had, besides fine varieties of *Lycaste Skinneri*, *Ondoglossum*, such as *Rossi*, *Cervantesii*, and *cordatum*; *Oncidium Phalaenopsis*, *O. nobilissimum*, and *O. coccineum maculatum*; a finely bloomed specimen of *Dendrobium crassifolium*, the yellow and brown *D. heterocarpum*, *D. cucullatum giganteum*, very fine; *Cypripedium villosum*, the scarlet-flowered *Nasom punctata*, *Arides teretifolia*, *Dendrobium moniliforme* in fine bloom, and the beautiful *Vanda cerniceles*, the flowers of which though small are very pretty, pale blue with a violet lip.

Mr. Denning, Lord Lonsborough's gardener, had the most remarkable example of *Dendrobium speciosum* upwards of 3½ feet in diameter, and having some fifteen noble spikes of flowers; a noble specimen of *Coleogyne cristata*, glorious in colour and gold; splendid cut spikes of *Phalaenopsis schilleriana*, such indeed as we have never before seen; *Ondoglossum Alexandrie*, very fine; a very fine spike of a *Stanhopea*, *Epidendrum Karwinskii*, *Cattleya Trianae*, *Angraecum citatum*, *Brassavola glauca*, several *Dendrobiums*, *Oncidium cucullatum maculatum*, *Ondoglossum Cervantesii* rosea with six fine flowers; and *Oncidium splendens*, reddish brown barred with yellow, with a most conspicuous bright yellow lip. This is a noble species, and will without doubt prove one of the finest of the genus, and a rival to *O. macranthum*.

Mr. Anthony Waterer, of the Knay Hill Nursery, sent *Cypripedium Lawsoniana erecta viridis*, a very striking and handsome variety, almost as upright in its growth as an Irish Yew or eastern Arbor-Vitæ, and which will certainly be most valuable in gardens. The same exhibitor likewise brought *C. Lawsoniana gracilis*, well so named, for it is of very graceful drooping habit.

First-class certificates were awarded to Mr. Lawrence for a cut specimen of *Cattleya Trianae Laurenciana*; to Mr. A. Waterer for *Cypripedium Lawsoniana erecta* and *gracilis*; and to Mr. Denning for *Oncidium splendens*. A second-class certificate was given to Mr. Ismay for *Libonia parthesiana*. Special certificates were awarded to Messrs. Veitch for *Dendrobium crassifolium*, and for their collection of Orchids; to Messrs. F. & A. Smith for a collection of *Primulas*; to Mr. Burnett for *Coleogyne cristata*; to Mr. Denning for *Ondoglossum Alexandrie*, *Coleogyne cristata*, *Dendrobium speciosum*, and for his collection of Orchids; to Mr. Stevens for *Cyclamens*, and to Mr. Hubbard for cut Orchids.

**GENERAL MEETING, February 16th.**—G. F. Wilson, Esq., F.R.S., in the chair. Twenty-five new Fellows having been elected, the Rev. Mr. J. Berkeley remarked that he scarcely expected much variety on such a day, but the meeting was greatly indebted to Messrs. Veitch and Lord Lonsborough for their exhibitions of Orchids. The latter had a van warmed by hot water so that his Orchids might not suffer on the road from Yorkshire to London. Among those from Lord Lonsborough were two which he believed had never been exhibited before—*Oncidium splendens* and *Stenia filicifolia*. *Vanda cerniceles*, exhibited by Messrs. Veitch, Mr. Bateman considered would ultimately be very fine. It had been described by Lindley many years ago; there was also *Lycaste alba*, the most charming *Lycaste* he had ever seen. Among the cut Orchids a variety of *Cattleya Trianae*, from the gardener to Bishop Sumner, had caught his eye by its beautiful colouring, and in another collection of cut blooms *Goodyera Dawsoniana*, which had been originally supposed to belong to the genus *Anacochilus*, but which does not require to be kept nursed up under a bell-glass like plants of that genus, though a very beautiful. The same collection was then noticed, and Mr. Berkeley remarked that they were very charming plants, but difficult to cultivate, though nothing could be more splendid than those grown at Dangstein.

The hybrid between *Libonia floribunda* and *Sericographis Ghies-*

brechtiana, of which the former was the male, the latter the female parent, was next referred to as being in some respects intermediate between the two, and an improvement on *Lithonia floribunda*.

The upright-growing variety of *Cupressus Lawsoniana* from Mr. A. Waterer, Mr. Berkeley said, was an extremely desirable form for gardens, and one of the finest Conifers ever brought to the Society's meetings. Attention was then drawn to a *Primula* producing red and white flowers on the same plant, the flowers in one truss being red with red stalks, and in another partly red partly white, the white flowers having white stalks.

A new sulphurator was next noticed as being extremely simple and cheap, and one of the most efficient things ever invented. The next subject he had to advert to, Mr. Berkeley observed, was of extreme importance. In France the Vines had been attacked by what was supposed to be a gall on the leaves, but which proved to be an insect like an Acarus. It had now appeared in England. This insect did not materially injure the leaves, but in what is apparently its adult state it exhausts the roots. The best remedy in his (Mr. Berkeley's) opinion would be to cut off the gall-like bodies on the leaves and burn them, and the application of gas-water. In a memoir published some time ago on the Continent, it was asserted that the insect had been seen in a winged state, but it had never as yet been observed in this country, but he recommended a careful watch to be kept to detect it. Of this insect, *Phylloxera vastatrix*, an engraving will be found in another page, and a long account in pages 45, 46, and 47 of vol. xiv.

Mr. Berkeley concluded by remarking that forty essays had been sent in to compete for the prizes offered by Mr. Eserton Hubbard, jun., for the best essays on Cottage Gardens and Window Gardening, but of course it would take time to arrive at a decision on their merits.

Mr. Andrew Murray then made some remarks on *Cupressus Lawsoniana*, which, he said, he had been the first to describe, and which had been discovered in California by the side of a waterfall. Within the last two or three years *Cupressus macrocarpa* had been cut down by frost, but in the multiplication of Mr. A. Waterer's erect variety of *C. Lawsoniana* there would be a hardy equivalent for it in point of form.

Mr. Berkeley remarked that although *Cupressus macrocarpa* had been cut off in the valley of the Thames, at the Margins of Haultley's, at Orton Hall, there were a large number perfectly healthy, and the same was the case in the neighbouring counties. Damp and not cold seemed to be the cause of non-success—at least it succeeded in localities where it was not exposed to damp.

The Chairman having announced that Edward Salt had sent a number of cut Orchids for distribution, and that there would be a ballot for plants, the proceedings terminated.

**GLADIOLUS EXHIBITION.**—A meeting of the supporters of the proposed Gladiolus Show was held on the same day as the above Committee, and a very encouraging list of subscriptions having been read by the Chairman, the Rev. Joshua Dix, it was decided that the show should be held on August 17th. Further particulars as to the classes to be formed, &c., we hope to give next week.

The following is the "Appendix I." referred to in our report last week of the Society's Anniversary Meeting:—

PROSPECTS OF THE ANNUAL INTERNATIONAL EXHIBITION OF SELECTED WORKS OF FINE AND INDUSTRIAL ART AND SCIENTIFIC INVENTIONS.

Her Majesty's Commissioners for the Exhibition of 1851.

*President.*

The Duke of Buccleuch, K.G.  
The Duke of Buckingham and Chandos.

The Earl De Grey and Ripon,  
K.G., or Lord President of the Council for the time being.  
The Earl Granville, K.G.  
The Earl Russell, K.G.  
The Lord Portman.  
The Lord Overstone.  
General the Honourable C. Grey.  
The Right Hon. W. E. Gladstone, M.P.  
The Right Hon. Benjamin Disraeli, M.P.  
The Right Hon. Robert Lowe, M.P.  
The Right Hon. Sir S. H. Northcote, Bt., C.B., M.P.  
The Right Hon. H. A. Bruce, M.P.  
The Right Hon. John Bright, M.P., or President of the Board of Trade for the time being.  
The Right Hon. W. E. Forster, M.P., or Vice-President of the Committee of Council on Education for the time being.  
A.—Her Majesty's Commissioners for the Exhibition of 1851 announce that the first of a series of Annual International Exhibitions

The Right Hon. Sir Alexander U. Spenser, Bt.  
The Right Hon. A. S. Ayrton, M.P., or First Commissioner of Her Majesty's Works for the time being.  
Sir Charles Lyell, Bt.  
Sir Frederick I. Murchison, Bt., K.C.B.  
Sir Thomas Bazley, Bt., M.P.  
Sir Francis Grant, P.R.A.  
Sir Francis R. Sandford.  
Thomas Baring, Esq., M.P.  
Edgar A. Doring, Esq., C.B., M.P.  
Thomas Fairbairn, Esq.  
Thomas Field Gibson, Esq.  
C. H. Gregory, Esq., or President of the Institute of Civil Engineers for the time being.  
Professor Huxley, F.R.S., or President of the Geological Society for the time being.  
Dr. Lyon Playfair, C.B., M.P.  
Henry Thring, Esq.

of selected works of Fine and Industrial Art and Scientific Inventions will be opened at South Kensington, London, on Monday, the 1st May, 1871, and be closed on Saturday the 30th September, 1871.

B.—The Exhibitions will take place in permanent buildings, about to be erected, adjoining the arcades of the Royal Horticultural Gardens.

C.—The productions of all nations will be admitted, subject to obtaining the certificate of competent judges that they are of sufficient excellence to be worthy of exhibition.

D.—The objects in the first exhibition will consist of the following classes, for each of which will be appointed a reporter and a separate Committee.

- I. FINE ARTS APPLIED OR NOT APPLIED TO WORKS OF UTILITY.
  1. Painting of all kinds, in oil, water colours, distemper, wax, enamel, and on glass, porcelain, mosaic, &c.
  2. Sculpture, modelling, carving and chasing in marble, stone, wood, terra-cotta, metal, ivory, glass, precious stones, and any other materials.
  3. Engravings, lithography, photography, &c.
  4. Architectural designs, drawings and models.
  5. Tapestries, carpets, embroideries, shawls, lace, &c., shown not as manufactures but for the fine art of their design in form or colour.
  6. Designs for all kinds of decorative manufactures.
  7. Copies of ancient or medieval pictures, mosaics, enamels, reproductions in plaster, fictile ivory, electrotypes of fine ancient works of art, &c.

## II. SCIENTIFIC INVENTIONS AND NEW DISCOVERIES OF ALL KINDS.

### III. MANUFACTURES.

- A. POTTERY OF ALL KINDS—viz., earthenware, stoneware, porcelain, Parian, &c., including terra-cotta used in building; with any new raw materials, new machinery, and processes for the production of such manufactures.
- B. WOOLLEN AND WORSTED FABRICS.
 

With any raw produce from new sources or newly prepared, and new machinery for woollen and worsted manufactures.
- C. EDUCATIONAL.
  1. School buildings, fittings, furniture, &c.
  2. Books, maps, globes, instruments, &c.
  3. Appliances for physical training, including toys and games.
  4. Specimens and illustrations of modes of teaching fine art, natural history, and physical science.

Detailed rules applicable to each of the above classes, and lists of the persons to be engaged in the production of objects of manufacture, will be issued.

## IV. INTERNATIONAL EXHIBITIONS OF NEW AND RARE PLANTS, AND OF FRUIT, VEGETABLES, FLOWERS, AND PLANTS, SHOWING SPECIALITIES OF CULTIVATION WILL BE HELD BY THE ROYAL HORTICULTURAL SOCIETY IN CONJUNCTION WITH THE ABOVE EXHIBITIONS.

Special rules for horticultural exhibitions will be issued by the Royal Horticultural Society.

E.—In classes II. and III. producers will be permitted to send one specimen of every kind of object they manufacture, each object being distinguished for novelty or excellence.

F.—The arrangement of the objects will be according to classes and not nationalities, as in former international exhibitions.

G.—One-third portion of the whole available space will be assigned absolutely to foreign exhibitors, who must obtain certificates for the admission of their objects from their respective Governments. Foreign countries will appoint their own judges. The remaining two-thirds of the space will be filled by objects produced either in the United Kingdom or if produced abroad, sent direct to the building for inspection and approval of judges selected for the British exhibitors. Objects not accepted for exhibition must be removed according to the notices given. Int no objects exhibited can be removed until the close of the exhibition.

H.—All exhibitors or their agents must deliver at the building, into the charge of a proper officer, the objects attached and ready for immediate exhibition, and free of all charges for carriage, &c.

I.—Her Majesty's Commissioners will find large glass-cases, stands, and fittings, free of cost to the exhibitors, and, except in the case of machinery, carry out the arrangement of the objects by their own officers.

J.—Her Majesty's Commissioners will take the greatest possible care of all objects, but they will not hold themselves responsible for loss or damage of any kind.

K.—Prices may be attached to the objects, and exhibitors will be encouraged to state their prices. Agents will be appointed to attend to the interests of exhibitors.

L.—Every object must be accompanied with a descriptive label, stating the special reason, whether of excellence, novelty, or cheapness, &c., why it is offered for exhibition.

M.—Due notice will be given of the days for receiving each class of objects, and, to enable the arrangements to be carried into effect, strict punctuality will be required from all exhibitors, both foreign and British. Objects sent or brought after the days appointed for their reception cannot be received.

N.—Reports of each class of objects will be prepared immediately after the opening, and will be published before the 1st June, 1871.

O.—Each foreign country will be free to accredit an official reporter

for every class in which objects made in such country are exhibited, for the purpose of joining in the reports.

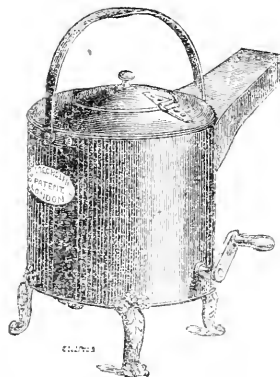
P.—There will be no prizes, but a certificate of having obtained the distinction of admission to the Exhibition will be given to each exhibitor.

Q.—A catalogue will be published in the English language, but every foreign country will be free to publish a catalogue in its own language if it think fit.

HENRY Y. D. SCOTT, Lieut.-Col. R.E., *Secretary*,  
Office of Her Majesty's Commissioners for the Exhibition of 1871,  
4, Upper Kensington Gore, London, W.  
23rd July, 1869.

### DRECHSLER'S FUMIGATOR.

MR. DRECHSLER informs us that the best way of using this fumigator, independently of comfort, is by passing its spout through a hole the width of a brick in a direction with the wind then blowing. The material generally used (tobacco paper), is placed in the basket without any live embers, such as coke or coals; but some dry paper, shavings, or leaves are put in in their stead. Ignite these by striking a match on the under part of the lid; then turn the handle, leaving the lid still open, and the rotary motion will produce a whirl of fire. This fire must be kept small, by quickly filling and refilling the fumigator, in order to produce the largest volume of smoke with the least amount of heat in the shortest space of time. When the operation lasts for some time sprinkling will be found necessary, for the fumigator ought never to become so hot as to take the jarren off, or so that the hand cannot bear to be on it



for a minute. This would be a sign that the smoke was also too hot for the plants. The material used ought to be rather dry to get over the work quickly, but if very wet material be used add a few chips to the tobacco paper to start with. I do not advise coke or coal embers, for they become cumbersome in the basket.

Persons who wish to take extra care in fumigating very delicate plants, especially cuttings in pits, ought to be provided, Mr. Drechsler says, with his "safety spout," made for the purpose of still more reducing the temperature of the smoke. It is placed in the spout, point inwards. Those who wish to take still greater care may have the revolving basket of copper wire and copper gauze, but both require to be kept clean, otherwise they are useless.

This fumigator is economical on account of its great speed in the production of smoke, thus filling a house or pit before the smoke has time to escape. The inventor considers his is, of fumigators, the most compact, the lightest, the most economical, and the least likely to get out of order.

### NOTES AND GLEANINGS.

In our report of the ANNUAL GENERAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY last week (page 103), we inadvertently omitted to state that James Bateman, Esq., F.R.S., occupied the chair.

— We have received a charming little Apple called THE FAIRY APPLE. It was raised by Mr. Jennings, of Shipeton-on-

Slour, from the Scarlet Siberian Crab. It will prove a formidable rival to the Lady Apple, and being so hardy and such a free bearer, will, we have no doubt, attract the attention even of growers of fruit for market. We understand that a handsome coloured plate of this valuable acquisition will appear in the March number of the "Florist and Pomologist."

— We have received the schedule of the MANCHESTER NATIONAL HORTICULTURAL EXHIBITION, to be held on the 3rd of June next, from which we learn that prizes of the most attractive kind are offered to competitors. The citizens' prize of £30 for sixteen stove and greenhouse plants is unusually liberal; and the same liberal spirit, though not in the same proportion, pervades the whole schedule, the total sum offered being upwards of £1000.

— We have also received the schedule of the LEEDS HORTICULTURAL SOCIETY'S GREAT EXHIBITION, which is to be held on the 3rd of June and three following days. Here again the prizes are of an equally liberal character, £36 being given in three prizes for twelve stove and greenhouse plants.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

It is now necessary to determine what the different quarters of the garden shall be filled with during the season. Though one vegetable may be grown on the same ground for years, yet such a method causes a greater expense for manure and labour than when a regular system of rotation is adopted, as the culture of one vegetable prepares the soil for the growth of another. The chief rule to be observed with all annual vegetables is never to have two crops of the same class directly following each other. Though excellent plans of rotation may be laid down, yet the period that will elapse before the ground is again occupied by a similar crop will depend upon the wants of the establishment, and the quantity of ground at the disposal of the gardener. Those who require to have several crops on the ground at the same time, will find that Celery gives a good preparation for Carrots, Turnips, Parsnips, Onions, and early Cauliflowers, or for Peas, with Potatoes and Winter Greens, or Broccoli, between the rows. Autumn-sown Onions may be succeeded by Spinach, Lettuce, &c., and early Cauliflowers by autumn Onions. Spring-sown Onions will be advantageously succeeded by Cabbages in beds, with Scarlet Runners between; and if the Cabbages stand all summer and next winter, the ground will in spring come in, along with Broccoli ground, for Celery, Potatoes, and Peas, the early Potatoes being planted in the trenches and the Peas sown on the ridges. To provide against failures in vegetable crops already sown, or where the climate is too cold to trust seeds for the present to the open ground, I advise again sowing Peas, Beans, Spinach, &c.; in addition to kinds formerly named, good early varieties of the first should be selected. They may either be sown in small pots for more easy transference to the open ground, or, when the quantity is considerable, cut fresh pieces of turf, 12 inches long, and 4 or 5 inches wide, turn the grassy side downwards, and make a channel along the centre of the now upper part, in which sow the crop as you would in the open ground. Manged in this way the Peas will sustain but little check, will root through the turf into the soil, and grow freely. If not already done, a sowing of Radishes may be made on a warm border if the weather is favourable, but the beds must be carefully covered in severe weather. Vacant ground, if any, may be dug, and everything that will forward the spring work should now be done before that busy time arrives.

#### FRUIT GARDEN.

Pruning of all kinds should soon be brought to a close, except that of Fig trees, which may yet remain. When Filberts are close-pruned, a deficiency of male blossoms sometimes occurs, in which case place some of the common Hazel having a crop of catkins about the bushes to fertilise the female flowers. Before Peaches are tied to the walls they should be dressed with a composition consisting of soft soap, tobacco water, and sulphur, to which add quicklime to give it consistency. Whenever any appearance of scale is found on other wall fruits, they should be dressed during winter with the above composition.

#### FLOWER GARDEN.

As before observed, see that all planting is completed forthwith. Improve as much as possible all outlines. Plant fresh masses or groups when necessary, and introduce specimen plants where fitting opportunities offer. Much mischief is done by planting single specimens in recesses; these should be care-

fully preserved, as a general rule, to give deep shadow, and to throw the prominent features into bold relief. If severe weather continue, every available means must be adopted to protect Tulips, Auriculas, &c. Early-planted Tulips and Hyacinths will now be appearing above ground. Let them have as much light and air as possible during fine days. Auriculas and Polyanthus which have been top-dressed and replaced in their spring quarters, should now be fumigated with tobacco. Remember that prevention is better than cure. Keep a watchful eye over Carnations and Pinks lest they sustain any injury from slugs or mice, both of which, at this season, work sad havoc amongst them. Rough weather has lately put a stop to out-door operations, but as soon as the ground is divested of its snowy covering prosecute as vigorously as possible those operations which remain unfinished. Delay the pruning of Roses for another week.

#### GREENHOUSE AND CONSERVATORY.

The conservatory should now be full of interest, and ought, where much attention is paid to flowers, to be as full of beauty as at any period of the year. Any Camellias done blooming should, if possible, be removed forthwith to some of the houses at work. A moist atmosphere, a temperature averaging 65°, and a canvas shading overhead, are the requisites in order to cause them to produce wood freely and large leaves. The shading must by no means be neglected. The leaves of Camellias by this treatment are large, and so healthy that they appear nearly black. Liquid manure should be used abundantly. The climbers should have a thorough dressing at this period, cutting away weak and decayed wood, and shortening back shoots (to furnish back-wood) previous to the growing season. It is somewhat difficult to give directions successfully for the management of a mixed greenhouse. Plants from all climates will occasionally obtain a place there; and as no special treatment in regard to temperature may be long indulged in with impunity, as to the plants from tropical climates, a compromise of some kind must continually take place. As a principle, therefore, of frequent and somewhat harmless application, a rather free increase of heat is advised on sunny days early in the afternoon for a few hours, sinking at night to the old point, or nearly so. In this structure there will frequently be found Ericas, Pelargoniums, New Holland plants, bulbs, and even Orchids. A division of these families is therefore advisable. Let the Orchids and plants from hot countries occupy the hot end with little air, and the Ericas, &c., the other end, where there is a much freer circulation; the Pelargoniums may stand midway.

#### STOVE.

Some little increase of temperature may now take place here, and that chiefly in the afternoon, by shutting up early and using plenty of moisture, taking care to thoroughly dry the foliage previously by a free circulation of air. As a sort of compromise between the eastern and western Orchids, a temperature averaging 55° by day, and a maximum of 60° at night, may suffice, allowing the thermometer to range to 70° or 75° on sunny afternoons by closing the Louse early. Look over the fastenings of Orchids on blocks or in baskets, and renew the wires where necessary. Fasten a little fresh material on those not to be shifted, but beware of burying the buds on the eve of pushing. Set baits for snails and earwigs, and attend closely to the extinction of scale. Examine, and shift where necessary, stove plants in general; also cut back some of the kinds after flowering to produce cuttings.

#### PITS AND FRAMES.

Alpines and other rare plants in pots should now be looked over; remove all decaying matter, and stir the surface of the soil. Those which it may be desirable to propagate should be divided into pieces, repotted, and placed again in the frame. Sow seed of *Salvia patens*, for seedlings make better flowering plants than cuttings. Sow seeds of *Lobelia* and the Golden Feverfew; the seedlings will make good plants for the edgings of beds, borders, or rustic vases. Bedding plants must have attention, for in all likelihood many of them are suffering, and such plants as appear to be injured most should be removed to other quarters where a more favourable temperature is kept up.—W. KEANE.

#### DOINGS OF THE LAST WEEK.

##### KITCHEN GARDEN.

Here nothing could be done outside, except turning over some ridged-up ground after the frost set in on Wednesday

morning, and making secure everything tender, by a little protection. Fortunately we had plenty of Sea-kale and Rhubarb roots under the protection of earth and litter, and we placed a succession in the Mushroom house. Some time ago we stated that a somewhat large Mushroom bed (for us), had become rather hotter than we liked after spawning, and the mode we took, on examining the spawn, to make all sure, by inserting some more little pieces. We were after all more afraid than hurt, as the yield has been very fine, and after gathering every day for some time, the bed seems to be yet coming white all over. It often astonishes us how long and how heavily a thin bed averaging scarcely a foot in depth will produce. In our rough lean-to house we can assist with a little hot water in pipes below the passage, when necessary. The bed referred to is a shelf bed, and though the bed on the ground below it is generally made deeper—say from a foot to 18 inches deep, and does in general very fairly, the pieces or beds there on the ground seldom equal, and are less under control than those elevated on the shelves, though the latter contain much less material. We attribute this chiefly to two reasons—the beds on the rough wooden shelves are assisted by the beds beneath them, when these are in the preparatory state, too hot for spawning, and then if the water in the pipes is allowed to be heated, the heat from them also ascends and warms the bed above, so as to keep it more uniform in temperature. We have no objection to a little heat in the bed—say about 70°, and if the spawn is active it will generally be little less than that; but if the air immediately over the bed is more than from 55° to 60°, the Mushrooms are apt to be thin, and long-stalked, instead of firm, and scarcely showing a stalk at all. These beds have frequently been watered with water warmed to from 70° to 80°, but we scarcely ever use clear water. Our favourite auxiliary is old, dry, sweetened cow dung, soaked in a warm place to give out its virtues, but sheep dung and deer dung are also very good. Any of these is more effective than horse dung, as the crop may be supposed to have enough of that. Frequently, when a bed has appeared to be exhausted, but which on examination we find to contain material not yet decomposed, and spawn not quite run to waste, a good watering with manure water, and a little covering of the bed, have in a few weeks given us another good crop. We have several times stated how low a temperature a Mushroom bed will bear, even to frosting; but when we want free production in a house or shed, it is as well to avoid all this cooling.

This brings us to the disputed question of covering, as contended for as being unnecessary, littery, and unseemly at the best. "What lady would touch your Mushrooms if she knew they were covered with such mouldy hay and litter?" This was deemed an evident conclusion to an argument against covering at all. We fear that ladies, and gentlemen too, would at times look a little shy at some of the finest made-dishes if they only knew or thought of all the processes, and handlings, and touchings through which the materials had passed. There are occasions when, if ignorance be bliss, 'tis folly to be wise. It might just as well be said, who would think of partaking of a close white Cauliflower that had the roots well drenched with dung water? Still we like to go into an elegant Mushroom house with box platforms constructed of durable iron, slate, or flagstone, heated to a nicely by hot water, and to look on beds covered with Mushrooms in all stages without a particle of litter about them, and all the surroundings as clean and comfortable as a sitting-room. Very often our beds are equally presentable, though far behind as respects the attendant neatness and elegance. Let us never neglect the elegant if we can obtain it; but for one man who can make a show of his Mushroom house, there are forty-nine, and even we suspect ninety-nine, who would go to no such first expense, and yet who would rather have the Mushrooms without ever putting the question as to how they were produced, or where they came from. In all rough, homely modes of growing Mushrooms, so as to be comestable by the many, whether in sheds, stables, cow houses, cellars, caves, &c., a little covering of the bed is often of great assistance for maintaining something like equality of temperature and moisture.

It is true the covering may be so abused as to do more harm than good, but that is no argument against its right use: What is good in itself may soon become an evil when carried to an extreme. The remarks we have received as to the answers given to several correspondents, whose want of success might have easily been turned to success, lead us to think that to them a more minute detail, embracing our own general practice, may be of importance, so far as this question of covering is concerned.

In making the beds, however made, and whatever the materials, it will generally be found that for a time the beds will be too hot for spawning. They must be watched and tried every day. The firmer the surface in general the more quickly will they cool down, and the less likely will they be to heat violently, as air, the great decomposer, will not so easily gain an entrance. If the temperature is on the decline it will be safe to spawn when the heat is from  $80^{\circ}$  to  $85^{\circ}$ , or about the same as that of new milk. On spawning, the moving and beating of the surface will tend to increase the heat a little, and a few degrees of rise will do no harm, and the bed may be left untouched until it is on the fall again, when the earth should be put on. Sometimes, after spawning, the heat of the bed will fall instead of rise a little, and in such a case we generally add from 1 to 2 inches of hot droppings or dung, and beat well down, and this is generally sufficient to set the spawn gently working. When we place on the 1 inch or so of soil, we beat it firmly, water the surface, and draw a clean sash firmly over it, so as to leave a smooth surface. The addition of the cold soil to a shallow bed helps to cool it. We examine the trial sticks frequently to see how the heat is below the soil, and if we find that is giving way, we put a covering of hay or litter over the bed, so that the heat shall not escape, and no check shall be given to the spawn. This helps to keep the bed equable in respect to temperature and moisture; but now the bed must not be neglected, or the covering may cause it to become too hot, for whenever the spawn begins to work in earnest it raises the temperature of the materials about it, and whenever this rise begins the covering must be gradually lessened, according to the place in which the bed is; so that in a place which can be heated the bed may be uncovered altogether, or have a very thin covering, as the Mushrooms appear. When the heat begins to decline, a little covering, and especially after watering, will tend to renew it, and set the spawn working afresh. In stables and mere unheated sheds, much of the success will depend on judicious covering, and on regulating the covering according to the heat of the bed, bearing in mind that when the spawn is working freely among material not quite decomposed it will always raise the temperature. We have known beds very much injured because in covering no allowance was made for the heat produced by the running or working of the spawn. In using covering, we like the surface of the bed to be firm and clean, and the covering material dry, so that the spawn may have no inducement to enter into and waste itself in the covering. In some cases we have secured a space of a couple of inches between the bed and the covering, but in general we just lay the covering on the bed. Nothing answers better than rough hay, but we have used litter, straw, &c. There will be no danger if the bed do not get too hot when the spawn runs. Then in mild, warm weather the covering should be lightened, though in an exposed place it would not be prudent to remove it altogether.

**Cold Pits, Frames, and Houses.**—We have frequently alluded to the management of these of late. In the generally drenching days up to the 9th of the month, these places were either kept shut, or had air given at the back and front by tilting the sashes according to the weather. Besides washing the glass, so dull were the days, that when it was dry for a few hours, and the sun gladdened us with his presence, we pulled off the sashes altogether, and Potatoes, Radishes, Carrots, Pinks, Carnations, Calceolarias, &c., were much benefited by the exposure. On the afternoon of the 8th the damp drizzle became searchingly cold, followed during the night by snow and frost, and the remainder of the week has given us severe frost, ranging from  $12^{\circ}$  to  $18^{\circ}$  below the freezing-point at night. The little snow has been a great protection in this emergency, and the frost was less felt, as it was unaccompanied by wind until the 12th, when the wind was piercing. A little more snow would be a great relief. With such a piercing wind we must be satisfied with a lower temperature in all places where the glass is not protected, so long as the inmates are safe. In a large metal conservatory we have removed the plants from near the front, as they would be easily injured there, whilst further back they would not suffer. Additional care was taken not to spill water so as to cause extra evaporation and extra condensation of moisture, and a lower, though safe, temperature lessened both evils. Plants near a heating medium required, however, to be well watched as respects watering, as Camellias, Cyliuses, Epacris, and other plants would soon suffer from dryness, and so would Hyacinths and various bulbs in bloom. In pits and frames where there was any artificial heat, watering was chiefly needed for plants near the heating medium. In all

such cases, even where a little heat was given by fermenting material, the glass was exposed for about half the day when there was sun, or rather, clear light; but very little air even at the top was given, and that for short periods.

Where there was no heat we uncovered merely in bright sunshine, and in dull days uncovered not at all, but as the covering was not thick we shook it afresh night and morning. Cauliflowers under hand-lights, thinly covered with litter, have not been uncovered since the frost set in. The stimulus of the sun would have done more harm than good. They will just have a comfortable sleep if no intruders in the shape of mice attack them. Houses for fruit and flowers we prefer keeping during the day at a low temperature as respects artificial heat, instead of giving them much of such keen frosty air. A little opening at the top was quite sufficient, shutting up early, and setting the fire going to raise the temperature as the sun declined. Young Cucumbers were in a pit, heated by hot water, with a very narrow pathway behind, and these we could attend to without opening a sash, as we would have been obliged to have done in a common dung frame. In this respect a place you can get into has an advantage of its own. It is well, too, to have even low pits and frames in a properly secured place.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending February 15th.

DATE.	BAROMETER.		THERMOMETER.				Wind	Rain.
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . . 9	29.906	28.732	31	19	34	39	E.	.00
Thurs. . . 10	30.100	29.968	32	16	34	39	E.	.00
Fri. . . . . 11	31.323	31.192	33	18	35	37	E.	.00
Sat. . . . . 12	31.229	30.100	30	15	33	35	E.	.00
Sun. . . . . 13	30.450	29.498	31	24	35	36	E.	.00
Mon. . . . 14	30.682	29.853	32	28	36	35	N.E.	.00
Tues. . . . 15	30.174	29.110	33	27	35	35	N.E.	.00
Mean.	30.169	30.017	32.00	22.14	36.38	36.85		0.00

- 9.—Fine and frosty; very fine; clear and frosty.
- 10.—Fine; sharp frost; sharp frost.
- 11.—Snow; fine, cold wind; cloudy, severe frost.
- 12.—Snow, exceeding frosty; cloudy; brisk wind, snow.
- 13.—Stormy, snow; densely overcast; hoistons.
- 14.—Drosters; densely overcast; cold wind, frosty.
- 15.—Foggy, very fine; densely overcast at night.

#### TO CORRESPONDENTS.

\* \* \* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.*

N.B.—Many questions must remain unanswered until next week.

**BOOKS (P. P. H.).**—"The Garden Manual" contains directions for kitchen and flower gardening suitable to your purpose. You can have it post free from our office if you enclose twenty postage stamps with your address. It also includes the culture of the Carnation and Pink. (H. E.)—We do not know the books you mention. Any country bookseller will tell you the price.

**BACK NUMBERS (G. H. S. in suspense).**—If you repeat in your letter the date of the five numbers you need, and enclose twenty postage stamps with your address, you can have them post free from our office. (Lis-keard, Cornwall).—You can have the three numbers if you enclose twelve postage stamps with your address. Specify the numbers you want when you write.

**GRAFTS OF PRUNUS PRINCEPS PEAR.**—"If C. Z." purchase a tree from the Messrs. Veitch, of Chelsea, and if it be as large as the one they sent me, he may get twenty grafts from it.—JOHN GREENSHIELDS."

**IMITATING FROSTED GLASS (Lyons).**—Frosted or ground glass may be imitated by pasting white tissue paper on the inside.

**BEDDING ROSES ON THE MANETTES STOCK (T. H. W.).**—"Do not bud the crown wood of the Manette stocks, by which I mean the wood of last year. Bud as near as you can to the part from which the roots emanate. If the main stock is rooted up to the crown wood, remove the roots to allow of your budding on the main stock, either underground, by removal of the earth, or as close to the ground as you can. Why do you remove them at all? But then where they are. Bud the stocks, that have failed, again. Till severe weather is over do not cut the budded stocks down. If the buds are dormant, and look frost, let them alone. If the eyes look doubtful, or badly developed, I should at once cut them down to an inch or so above the bud, and so stop the sap. I can say the bud, I thought dormant had last autumn. Duke of Edinburgh, Charles Lee, Monsieur Noman, Vicomtesse de Vézins, and Madame Rivers, and I cut them down on the 10th inst., to within 4 or 5 inches of the buds. You may cut your



**DESTROYING DANEY ROOTS (A. Young Subscriber).**—Lay mounds from wood ashes would not kill Daneys, and would improve the growth of the grass as well as that of the Danies. We know of no remedy but grubbing them up by the roots with a knife. This may seem a troublesome process, but women and boys may be advantageously employed in carrying it out.

**FOUNTAIN BUSH (A. C.).**—We cannot advise you further than to write to one or other of the Editors, or to publish in our columns. State what you require, and ask for an estimate.

**DESTROYING CRICKETS (G. W.).**—Procure a pot of phosphorus paste, spread it like butter on this slice of bread, and put it at night near their haunts, removing it in the morning. It will poison them.

**E. NISERVA METALLICA (C. N. R.).**—When young plants are put out they attain a height of from 9 inches to a foot in one season, and they may be used as a first or third line in a border, or as a hedge, or as a border or border with higher-growing plants in the centre or at the back. For small beds it makes a good centre.

**RENDEL'S GROUND VINERIES (Edm.).**—We are unable to furnish the information you require. Write to Mr. Rendle, and state what information you wish.

**MOSS ON BOWLING GREEN (A. J.).**—We advise giving the grass a dressing of rotten manure now, and by raking it well the lawn will not be injured for playing upon, as the dressing would disappear with the first rains, the rough of the manure being raked off. At the same time we would give a good dressing of good bones, and with good rolling the lawn may be used a short time afterwards. By encouraging the growth of the grass the manures will destroy the moss.

**TOEGLIA CONCHIFLORA TREATMENT (A. B.).**—It is a bulbous plant, and usually flowers at the beginning of July, earlier or later according to the season and the position of the planting. The bulbs should be potted now, placing three or so in a 4-inch pot, in a compost of 1 part of loam, 1 part of peat, and one part of sand, with a free admixture of sand. Place them in a house or pit from which frost is excluded, and continue them there, keeping the soil moist until May, when they may be planted out, with the bulbs entire, in the borders of good rich soil, light rather than heavy, and well watered in dry weather. Take them up in autumn, and either pot the bulbs and keep them dry, or store them in a place from which frost is excluded, potting again in February or March, and forwarding in a pit or house before planting out.

**PROPAGATION OF HERMS (J. E. Herber).**—Sage is propagated from seed sown early in April, in lines 1 foot apart, and the seedlings so thinned that they stand at that distance; as well as slips which are taken off the old plants about the same time, put in up to the leaves, and well watered in dry weather until established. They are usually planted in beds 4 feet wide with 1-foot alleys between, an interval of 1 foot being allowed between the plants. *Fennel* seed should be sown at the end of March, in rows 2 feet apart, and the plants thinned out to 1 foot from each other in the rows. It may be sown in rows, or by division of the plant. This may be done at the beginning of March, every division having a crown and portion of root; plant in lines 2 feet apart, and 18 inches from division to division. *Chamomile* should be propagated by dividing the roots early in April, or when the young plants are growing, putting in the rooted divisions in rows 1 foot apart, every row having a crown and portion of root, and well drained, not very rich soil, is most suitable. *Thyme* may be sown at the end of March or beginning of April, and when the seedlings are large enough thin them out to 3 inches apart. Propagation is also effected in the same way as described for *Sage*. *Mint* is increased by taking off the shoots in spring, when from 3 to 6 inches long, and with roots to them, planting them a foot apart, in light, rather moist soil, and watering until they are established. *Peppermint* is sown early in April, in lines 1 foot apart, and thinned out when large enough to the same distance in the rows; or divide the roots in April, and plant out 1 foot apart, watering in dry weather. Rather light soil is best. *Sow Winter Savory*, or put in slips, in April, and treat it the same as *Sage* and *Thyme*. *Lavender* is sown early in April, and treated like *Sage*, or take off slips and put them in like those of *Sage*. *Pennyroyal* should have the roots divided early in April, and be planted about 1 foot apart in light soil, in a rather moist situation. All they require the first year is to be kept clear of weeds, to be watered until well rooted, and throughout the summer if it is dry and hot.

**PEACH HOUSE (B. A. P.).**—If you had given us a rough section of your house, with the height in front and other particulars, we would have been better able to advise you. For Peaches and Nectarines, your best plan would be to enter the back wall, and have a low trellis in front, and a trellis to enter the back wall, and a trellis to enter the back wall. You may plant three trees in the back wall, and a trellis to enter the back wall, and a trellis to enter the back wall. One Noble and one Belleme Peach, and one Violetta Nectarine; in front, one Fitzmaurice Orange Nectarine, one Elmsgrange Nectarine, and one Wallbridge Admirable Peach. Two trees back and one in front would be enough, but by clipping and pruning at times these would fill the house sooner. You could also, if disposed, have four Vines on the roof, as that would enable a good amount of light to reach the back wall—say, Black Hamburgh, Black Mosaic of Alexandria (Black Hamburgh), Buckland Seedling, and the same of the Muscadine. The roof of the house might be tiled at first with fruiting plants in pots.

**LIMESTONE FOR ROCKWORK IN STOVE FERREY (W. T. H. E.).**—Limestone is not the best of material for rockwork, but it is not inimical to the growth of Ferns; indeed many kinds luxuriate in vegetable mould in the cracks. We prefer granite or freestone, but almost any kind of stone answers well. We recommend you to make the rockwork massive and thoroughly rocklike by jointing and facing with cement. No flowering climbers would succeed in a fernery, as the Ferns require more moisture and shade than is good for flowering plants. Roses are out of the question. *Lygodium* would be a good elegant climbing Fern suitable for training up pillars; but if the place where you require the climber is not used as a fernery the case is different, and you may have Roses or other plants if the temperature is that of a greenhouse. Three Roses are *Isabella Gray*, *Gloire de Hollande*, and *Marye Niel*, all Tuscany. Other plants have *Lucania gratissima*, *Habrothamnus elegans*, and *Plumbago* depends.

**SEEDS SOWING (Rev. E. W. S. R.).**—*Borage*, sow where it is to remain in an open situation, in rather light good soil, early in April. Thin out to 1 foot apart. *Singflower*, sow in an open situation in lines 2 feet apart, and thin the plants in rows from 6 inches from 6 inches from 6 inches in the row. Light rich soil is most suitable. Early in April is the time to sow *Sun-*

*flower seed*. *Chilian Beet*, sow in April where it is to remain, and thin out to 1 foot apart. *Arundo*, sow in a pan or pot of sandy loam and leaf soil, place in a frame with a gentle heat, and shade so as to keep the soil moist without having to give much water. When you remove the seedlings to a greenhouse, and ultimately remove them to a cold frame, potting off the seedlings when large enough, and continue them in the frame until the potting is recovered; then harden them off. It is a Grass, and not hardy except in warm sheltered situations; therefore protect the plants in winter in a cold frame or cool house, and plant out early in summer.

**CELERY BOLTING (Q.).**—Celery certainly requires a considerable amount of moisture when growing, but we do not like wet ground for it, as it is so liable to rot without being injured by it. The best plan, therefore, we should say, was not to do too rich soil, but the reverse, and the ground we should think wisely unsuited to Celery cultivation. Run-ning is a result of a check given the plants during the season of growth, or when the soil is so wet that they start to grow, or when the plants are allowed them to become large before pricking-off, transplanting without good balls, want of water in dry weather, &c. Poor soil encourages it; rich soil and plenty of manure are necessary for fine, nutty, well-grown Celery.

**FRUIT PEAS FOR SCOTCHMAN (W. H. B.).**—Sow low as soon as the weather becomes mild, Dickson's First and Best Early, and the crop will be in use early in July, and at the same time sow Princess Royal (Maclean's), which will succeed the first about the middle of July. When those sowings are above ground sow Beck's Prizebreaker, and if sown on the 15th of March they will be in the first week of June. For a fortnight afterwards sow Vetch's Perfection, or Champion of England, and every fortnight afterwards in order as follows—Yorkshire Hero, British Queen, General Wymouth, and Ne Plus Ultra. The last sowing in this case will be on the 15th of June, and should sow Ne Plus Ultra again at the end of June, and if the autumn be favourable you will have Peas late. We have had them in December not many miles from where you write, and in a colder place.

**FEAR (M. Y. Z.).**—The specimen enclosed is only fit for fuel. The Fern cannot be used for so imperfect an article as fuel.

**PEAS AND FRAMES (C. P.).**—You had better write to the firm you mention; we cannot explain their meaning.

**BOILERS AND BOLING.**—Allow me through the medium of THE JOURNAL OF HORTICULTURE to assure Mr. Woodfield that I had no cause or wish to complain of the tenor of his articles in the recent discussion with respect to heating horticulture boilers. I should be sorry if anything said in my last conveyed this impression to him. That we differed, and still do differ, in opinion on the theory of the subject is what I expected; in practice I can clearly see we should set the boilers nearly in the same way, and use the same-sized pipes, &c.; and though I may not have been able to get any day converted to my way of doing, yet I must thank him for the courteous way in which he has expressed his own opinion on the subject.—C. F. PEACH.

**GRUBS AT THE ROOTS OF PUEASTIA (D. W.).**—The grubs which have attacked your *Pueastia* (you do not state in what manner, but we suppose by gnawing the roots) are, as I judge, those of the troublesome weevil, *Oryctolynchus vastator*. The earth must be carefully moved from the roots and sifted, the grubs destroyed, and fresh sifted earth supplied to the plants.—W.

**NAMES OF PLANTS (A. Young Subscriber).**—*A. B.*—*Serico-graphis* *Ghesbreghtii*, *Tridactylis*, *Stenophyllum repens*. (*Tridactylis*—1, *Cyclotium carvotidum*; 2, an *Asplenium* in a condition too young to be named with certainty, possibly *A. rigidum*; 3, *Polystichum angustatum*. (*Quartinia* *Reh.*—Both *Salicaria Martensii*. (*A. B.*—1, *Witnansia carvotidum*; 2, *Witnansia carvotidum*; 3, *Witnansia carvotidum*. (*Young Subscriber*—We cannot name a plant from its leaves only. (*B. C. H.*—*Lagurus ovatus*, *Hare-tail Grass*.)

## POULTRY, BEE, AND PIGEON CHRONICLE.

### A FASTING HEN—PAROQUETS LAYING AND HATCHING.

Just now when we have been hearing so much of "fasting girls," I am induced to send you an account of a fasting hen.

About six months ago my servant informed me that two hens had been missing for three days. All possible inquiries amongst our neighbours, and active search, were made, but in vain, and we came to the conclusion the hens had been stolen. At the end of a fortnight the servant's notice was attracted by a few feathers which he traced to the back of the nest-box, where, wedged in between the boxes and the back of the house, he drew out one hen partly eaten by rats, and then the second in the last stage of exhaustion, almost too weak to eat, and quite unable to stand. She, however, recovered wonderfully soon, and is now in perfect health and one of our best layers. I imagine that, frightened by a rat, they ran head first behind the nests, and so wedged themselves in that they were unable to turn or retreat.

I saw in last week's Journal an inquiry about Australian Paroquets laying. Mine laid and hatched during several seasons, and I believe they do so very commonly in this country.—R. M. Hants.

### PENRITH POULTRY SHOW.

This Show was of extraordinary excellence, most of the birds being of the highest character. An alteration in one respect would have





non Goldfinch. 3. H. Ashton (Cinnamon Redpole). *hc.* J. S. Swithenbank Bradford. 4. P. New (Brown Owl). C. Obermuller (Variegated Balduin). *c.* W. Bailey (Bearded Titmouse).

#### BIRDS OF PASSAGE AND MIGRATORY BIRDS.

BLACRACK—Prize, C. Obermuller. *hc.* J. W. Harrison.  
NORTHGALLEY—Prize, J. W. Harrison. *c.* L. Cassavola. J. W. Harrison.  
SHRUBS AND BERBERIS—Prize, A. W. Walker. *hc.* W. W. Walter. *hc.* J. Judd.

OTHER VARIETY—1. W. Vener (Crested Lark). 2. W. J. Walling (Tit-lark). 3. J. W. Harrison (White Throat). 4. W. Walker (Bald Lark). *hc.* W. W. Walter. *hc.* J. Judd.  
COLLECTION OF BRITISH BIRDS—Not less than six in one cage.—1. A. Rettich. 2. S. Hinds. Equal 3. J. Judd; J. W. Harrison (Six in One). *hc.* W. W. Walter.

#### FOREIGN BIRDS.

COCATO—Lemon or Orange-crowned.—1 and 2. M. George, London Docks. *hc.* C. Mackenzie. *hc.* H. N. Whitaker, London.  
COCATO—Leadwater or Rose-breasted.—1 and 1. W. B. Bailey. 2. J. Judd. 3. H. N. Whitaker. *hc.* Mrs. G. Crags, Upper Norwood; C. Obermuller. *hc.* A. Isaacs.

COCATO (Any other variety)—Prize, A. Isaacs (Donors).  
PARROTS (Grey).—1. Mrs. Sutt, Kangaroo. 2. H. Webster. *hc.* J. J. Judd. *c.* E. Stevens, Hammersmith.

PARROTS (Green, or Any other variety of large, except Grey).—1 and 2. J. J. Judd (Amazons). 3. T. Newmarch. 4. W. W. Walter (Balla Bull). *hc.* W. B. Bailey (Black); Mrs. W. McChery, London (Yellow East Indian). *hc.* J. Battershill, London (Rosella). *c.* T. Newmarch.  
LOVE BIRDS (In Pairs).—1. E. Hawkins. *hc.* W. B. Bailey; J. Judd. *hc.* E. Jameson.

PARAKEETS (Australian Grass, in Pairs).—1. T. Newmarch. 2. J. Judd. 3. B. Bailey, Finsbury. *hc.* W. W. Walter. *hc.* H. N. Whitaker, London.  
PARAKEETS (Green-necked or Bengali).—1. W. S. Underwood, Upper Sydenham. *hc.* H. Webster; A. Isaacs.

PARROTS OF PARADISE (Any other variety of Small, in Pairs).—1. T. Newmarch. *c.* A. Isaacs (Red rump).

PARROTS (King).—1. J. W. Harrison. *hc.* W. B. Bailey; C. Obermuller.

PARROTS (Parrots).—1. W. W. Walter. *hc.* H. N. Whitaker, London.

COCATELS (In Pairs).—1. J. Judd. *hc.* A. Isaacs.

LION (Any variety).—1. D. S. Turner.

SPARROWS (Diamond, Single).—1. E. Hawkins. *hc.* W. W. Walter. *hc.* W. B. Bailey.

SPARROWS (Coral-necked, in Pairs).—1. E. Hawkins. 2. A. Isaacs. *hc.* W. B. Bailey; J. Judd. *hc.* W. W. Walter.

SPARROWS (Java, in Pairs).—1. E. Hawkins. *hc.* A. Isaacs; W. W. Walter.

WAXBILLS (Any variety, in Pairs).—1. J. Judd (Orange-faced). 2 and 4. E. Hawkins. 3. H. N. Whitaker. *hc.* W. W. Walter.

WAXBILLS (Zebra and Abrevalva).—1. A. Isaacs (St. Helena). *hc.* W. B. Bailey (St. Helena and Orange Cheek); W. Walter (St. Helena); H. N. Whitaker (Zebra).

NORTHGALLEY (Virginia).—1 and 2. *hc.* E. Hawkins.

CARDINALS.—1 and 2. *hc.* E. Hawkins. *hc.* W. B. Bailey.

WIDOW BIRDS.—1. C. Obermuller. *hc.* W. B. Bailey.

PARROT VARIETY.—1. W. W. Walter. 2 and 3. E. Hawkins (Banded Finch), and Rare Mannan (from Japan). 4. *c.* W. B. Bailey (Guinea and Chestnut Finch).

4. T. Newmarch (Chestnut Finch). *hc.* W. W. Walter (Parakeet); W. B. Bailey (Silver Finch); H. N. Whitaker.

WINNERS OF SILVER MEDALS.—Class 1. to S. Messrs. Benrose & Orme; 9 to 20. Mr. E. Hawkins; 21 to 24. Mr. J. Young.

The Judges were for the *Cunaries*, Messrs. Willmore, Barnesby, and Moore. *British and Foreign Birds*: Mr. W. Goodwin.

## THE NATIONAL PERISTERIC SOCIETY'S SHOW.—FEBRUARY 7TH.

(From a Correspondent.)

The amalgamation of the Philopeterian and the National Columbian Societies—which took place two seasons ago under the above name—will be recalled with the establishment at the Crystal Palace of an annual Show of singular interest and importance.

Now-a-days all shows are "grand" shows; but the use of that hard-worked adjective was in every sense fully justified on the 8th inst., by the manner, spirit and material of the National Peristeric Society's Exhibition. As a yearly reunion of town and country friends, the occasion is of particular interest to the members (who alone are entitled to exhibit), while to the public several features contrasting with ordinary shows are presented, not the least being the display of selected studs rather than the rivalry of individual specimens.

Notoriously the members of this Society possess some of the finest collections of fancy Pigeons; these not only were brought forward in all their excellence and variety, but were fittingly displayed, on valuable stock always should be displayed, in handsomely-constructed pens, for the effective arrangement of which the members are indebted to the good taste of Mr. P. H. Jones, their obliging Honorary Secretary. The presence of the owners in charge of their several favourites further contributed to the effect by conferring upon the birds an air of comfort, quite unique and always to be missed at ordinary exhibitions. The absence, too, of all the discordance incident to prize-list competition was in itself a charm; while none the less was the competitive element present, in a form, however, thoroughly healthy, and likely to promote yet higher results in artistic Pigeon culture—a feeling of curious interest alike to both the amateur and naturalist.

Where all did their best for the honor of the Society to single out names would be invidious; and of the birds it will only be necessary to record a more than average excellence. Carriers, Barbs, Short-faced Tumblers, and Dragons appearing in notable strength. Although Pouters are receiving revived attention, their ranks on this occasion were thinned owing to the lateness of the date. Of other varieties many were well represented in number and quality. Bearing in mind the professions of this popular Society, I may fairly express myself that, if it could for a moment tolerate the whimsicality perpetuated by a member who exhibits as "Carriers," some ordinary "homing" Pigeons, Antwerps and what not. This alacrity may seem to members not to be worth notice, but to the public it is simply misleading, many of whom. I don't net, left the Exhibition with extravagant notions of birds mostly valued, in contrast with the

Carrier proper priced always by pounds, to say nothing of historic associations thus disturbed. If "flyers" cannot be exhibited on their own merits, they must not be permitted to borrow—I had almost said steal—an advantage at the expense of other varieties.

I cannot but call attention to the single pair of Laced Fantails which graced the Show, exhibited by the Secretary and exciting general admiration. For the rest, I must refer the reader to the appended schedule, covering an aggregate of nearly one thousand birds, valued at a sum I dare not appraise, seeing that in some cases twenty guineas were refused for single specimens.

As the National Peristeric Society represents the most modern and advanced phase of Pigeon fancying, it will not be out of place to state that its avowed object is the encouragement of scientific Pigeon culture as a naturalistic recreation. It seeks to provide its members with means of association and social intercourse, to promote the intelligent discussion of all matters relevant to its object, to tabulate authoritative standards of properties, to improve classification, to disseminate useful information, to enable members conveniently to exhibit their birds, to examine and decide, within reasonable limits, controverted questions, and in every legitimate way to elevate a pastime of so much interest and popularity.

#### SCHEDULE OF THE SHOW.

VARIETIES.	EXHIBITORS.
Pouters	Greenham, Jones, Tegetmeier, and Volkman.
Carriers	Hedley, Ord, Feltham, Greenfield, Elze, and Crossley.
Short-faced Tumblers, Almonds, Agates, and Kites	Rever, Pimby, Burge, Ford, Merrick, Jayne, and Jones.
Ballheads, Beards, and Noddies	Esden, Woolhouse, and Rossiter.
Barbs	Hedley, Jones, Dart, and Crossley.
Dragons, various	Percival, Betts, Greenfield, and Elze.
Rollers	Guyon, Jones, Vandermersch, and Valler.
Turblits	Jones and Vandermersch.
Nuns, Trumpeters, Owls, Laced Fantails	P. H. Jones.
Mapes	Jones and Vandermersch.
Fantails	Jones and Merck.
Rollers	Lafle.
Antwerps	Hudson and Little.
Pizny Pouters	Tegetmeier.
Miscellaneous	Jones and Tegetmeier.

## PORTSMOUTH POULTRY SHOW.

Just a year ago the Portsmouth Ornithological and Zoological Society held its first show, which was a success. This year a second show, decidedly superior to its predecessor, has proved that the management of the first was satisfactory. The Drill Hall of the 5th Hants R.V. was all that could be desired for the purpose to which it was applied, and the arrangements, generally, connected with the Exhibition were exceedingly good. I noticed that every committeeman wore a rosette and a piece of ribbon with the word "committee" inscribed in large letters. This is an excellent plan, as it enables strangers to apply for information in the right quarter without delay. Whilst I watched the committeemen busily engaged upon their sedulous labors, frequently unthankfully, I could not but think how unkind, how ungenerous, to judge thus the pleasure of competing for prizes, as the chance of obtaining one is in most cases the only reward for their labours they can anticipate. Surely it is a natural and honest aspiration that a man should wish to win a prize at the poultry show nearest his home, where his success may be witnessed, and himself congratulated by relatives and fellow townsmen.

To return to the Show. All the poultry, Pigeons, cage birds, and most of the Rabbits were placed so as to form four avenues from end to end of the Hall two tiers high; thus all the stock shown could be inspected with comfort.

The *Cochins* were classed first in the catalogue. Black and other Reds were, naturally, the strongest, but Duckings were of the highest quality. A pen of Pile Game of beautiful colour contained a cock with a remarkably convex back. I think "NEWMARKET" says that birds of this shape are of the highest courage; be that as it may, anything approaching to a hump on the back is very unsightly. This pen was highly commended. The *Cochin* class contained fine specimens of Buffs, which easily beat their Partridge-colored and White opponents. Of *Darwins* one or two pens were very good, but competition was keenest amongst the Lights. Mr. Peres was fortunate enough to take both prizes. I preferred his second-prize birds; they were larger than the winners, and beautifully marked on the hackle, as Mr. Wright admires them; their combs, however, were coarse. In this respect the birds that beat them were as perfect as Mr. Crowley could desire, but their hackles was far too tight to suit the taste of many. *Duckings* and *Spanish* were average classes, the former not extraordinarily large. The *Spanish* were warty-faced. Why have warty-faced birds been so long preferred? I am glad to observe signs of an alteration of public opinion in this respect. No doubt it will be possible to breed paper-faced birds with as good a carriage and as majestic an appearance as their hitherto more fashionable relatives. It is cruel that so much trouble should be taken to breed birds with highly developed malformation, which must always inconvenience them, and eventually make their lives miserable. The *Hamborough* classes were the best in the Show. A splendid pair of Silver-splangled just beat a beautiful pen of Golden containing an exquisite hen. In the Pencilled class Golden won easily, but the Silver were superior to

those usually seen, at any rate in the south of England. The *French* varieties formed a nice class. *La Fleche* were first, very large birds, apparently overgrown. Remarkably good *Houdans* were second. A handsome pen of *Cri ve Coups*, the cock minus his tail, and another of dove-shaped *Houdans*, received high commendations. Messrs. Hills and Co.'s nautical pen (92), though not compact birds, looked praiseworthy through the wires.

The class for "Any other variety of fowl" contained first rate specimens of useful and ornamental breeds, and was second only in merit to the *Hamburg* classes. Beautiful *Silver Polish* were first, scarcely inferior *White-crested Black* second; *Sultans*, *Andalusians*, *Golden-spangled Polish* honourably mentioned. Three hybrids were shown in this class, the result of a cross between a *Pheasant* and a fowl; their plumage seemed to be mainly bronzy brown with a rich metallic lue about the neck; they were curious rather than handsome, and did not appear to be very wild.

*Game Bantams*, thirty-three entries, many of them very good. Mr. Kellaway's birds were remarkable for beauty of colour. *Bantams*, any other variety, formed a small but good class; *Sebrights* of the highest merit first, *Rose-combed Blacks* second. Where are the *Rose-combed clean-legged White Bantams*, than which none are prettier? Where, too, is the port, lively, feather-legged breed? Both out of fashion, I fear. Need it be wondered at? To one silver cup offered for any variety of *Bantam* except *Game*, thirty are offered for *Game Bantams*. Writing of the dwarfs of the poultry yard leads me to think of the giants. I regret the absence of *Melops* from most poultry shows. Space should be found for these *Goliaths*. What a striking contrast they would present arranged opposite or next to the *Bantam* classes!

Then might spectators marvel that birds so dissimilar should be alike the descendants of the original pair (a most original pair I can imagine), that at one time must have constituted Noah's strain.

Of *Pheasants*, *Aylesburys* took the first prize. Neither *Aylesbury* nor *Rouen* were large as weight's go. Some very pretty ornamental water-fowl were exhibited in this class. *Geese* and *Turkeys* were average classes.

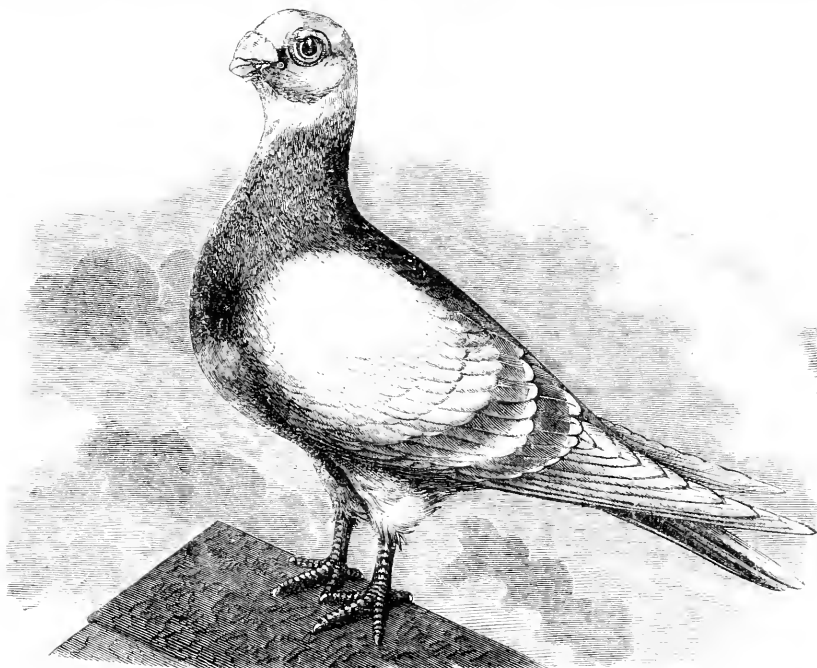
The *Pigeons*, though not numerous, were of the highest merit. Of *Pouters White* were first. Of *Barbs* such a collection is seldom seen; *Blacks* were first, *Yellows* second, the whole class honoured by the Judge. For *Carriers* Mr. Maynard took both prizes with splendid birds. The winners (eighteen months old), were almost faultless; such shape and carriage as they displayed are seldom seen now-a-days. Among *Fantails* a pair of very handsome but rather coarse *Whites* was first, a good pair of *Blacks* second. Mr. Maynard's highly commended *Whites* were smaller and more delicate than either of the winning pairs. I am inclined to think "WILTSHIRE RECTOR" would have awarded them the first prize. The "Any other variety class" was strong in numbers and merit, Mr. Yardley deservedly first. Lady Boothby's *Runts* must have been imported from *Probbignag*.

Adjoining the Exhibition Hall were refreshment rooms. Here the wearied fancier after, as some people beautifully express it, "standing on his legs" all day (as though any were in the habit of standing on their heads all day), might sit down to a good and inexpensive repast. This suits the digestion of the period—which I take to be identical with dyspepsia—better than having to bolt one's food standing cramped and jostled in front of a busy bar. I wish success to the next *Portsmouth Show*.—H. S. FRANK, *Headley, Hants.*

### THE ANTWERP PIGEON.

THE engraving below, contributed by the Birmingham Columbarian Society, represents one of the best specimens exhibited at their last Show. The members of this Society can with safety say that they possess the best specimens of

"*Show Antwerps*" similar to this, and however seldom such a type can be seen at public exhibitions, birds conforming to it are to be seen in formidable classes at this Society's shows. The engraving represents a fully-developed, above-three-



years-old bird (three years being the age of maturity), *Silver-dun Antwerp*, which is the most favourite colour, being so dissimilar to any other class of Pigeons. It is of a silver ground in body and head, with a very deep purple-red neck and hackle, and well-defined red bars across the wings.

The head of this class of birds is to all true connoisseurs of Pigeons most intelligent and dignified; it is rather oval from the root of the beak to the back of the head, and well arched, forming also an arch across the eyes, thus having no indentations whatever. The skull, though oval, is broad and rather

prominent from the eye to the root of the beak, which causes the oval-shaped head. The beak should be short and thick, with proportionately warted nostrils, slightly rising close to the head; the under mandible of the beak, with the exception of the wart, should be similar in formation to the top mandible, possessing a small portion of horny substance, as the feathered skin extends within an eighth of an inch of the end of the mandible, which appears quite as thick as the top warted mandible. The eye of this bird is most remarkable; it expresses dignity and great resolution. It is of a bright red colour, with a large black pupil, and it should be encircled with a fair portion of lach, rising on the upper part, so as to equal the height of the centre of the arched head, causing the eye to be very prominent and conspicuous. In carriage this bird equals any of the other varieties. It stands high, is wedge-shaped, and quite clear of any superfluous feathers near the legs. It has a most graceful neck, moderately arched below the head, and possesses a very broad chest, enveloped by the powerful units of its wings, which have strong, broad, and long flights, the longest of which reach the end of its tail. Though the birds of this breed appear large, on examination they will be found to be of very moderate size, as it is the length of feathers which makes them appear otherwise.

Undoubtedly the fanciers of Birmingham and its district were the originators of the Show Antwerp, and certainly they agree as to the standard of the breed as above represented. They deserve high praise for their endeavours in raising this bird to the position it now occupies amongst fanciers, and the favour which it gains daily, notwithstanding the condemnations of the prejudiced, proves what perseverance can accomplish. Visitors to the Society's Show, who only knew of the common half-bred Owls called Antwerps, were taken by surprise, and offered to purchase many of the specimens. One fancier, a non-admirer of this breed, has confessed that he can now see that birds of this class command the admiration of all who are willing to observe them attentively.

There are but three more colours recognised by fanciers:—the Blue Chequered and Red Chequered, which, when good in colour, command quite as much admiration as the favourite Silver Dun—and the Blue, which is of a beautiful clear blue, with exquisite metallic neck, blue rump, and jet-black bars. Fanciers generally like to see the good effect of all the colours in their pens.

Some prefer the Red Chequered with grey heads to contrast with the deep purple-red neck, but quality is of the greatest importance in this breed.

These birds are bred true to colour, and they breed true-coloured birds, and should never produce young with a taint, or any indication of it, as is the case with the common Owl-bred birds.

Now a word as to their homing properties. Though the gladiator-like character of the bird is sufficient recommendation, the owners of these birds do not care to expose them to the risk of being shot, shooting flying Pigeons being the common habit in the midland district. Notwithstanding, trial has proved that they are capable of undertaking any reasonable journey with proper training. They originated from the celebrated short Belgian Antwerp of the Liège type, and as a proof, two birds of this class, which had been sold when only five and six months old, have returned home, the first twelve months, and the second two years afterwards, hardly recognisable from improvement, but for taking possession of their original roosts.—N.

## SUNDERLAND CANARY SHOW.

I SHOULD be stepping beyond my province of Secretary, were I to venture on any critique on the judging at our late Show, but I shall go so far as to say, that to us, as a Committee-man, it was very satisfactory. There might have been here and there an exhibitor who could not see with the judges' eyes; but, as a whole, the awards were evidently the result of most careful scrutiny, and accurate knowledge of the requirements of the various classes.

For the information of those who could not visit us, I may just observe that the prominent features in the Show were—Messrs. Bone-rose & Orme's Clear Jockey, and Mr. Walker's Clear Buff Norwich; the Belgians shown by Mr. Ratter, and the Mules, of which Messrs. Young, Ashton, Shiel, and Stanfield were the chief exhibitors. The Norwich birds referred to were simply perfection. As for the Belgians, it was the opinion of the most competent judges, that twelve such birds as those with which Mr. Ratter took the whole of the Belgian prizes, were never before staged by one man in England. The Norwich were perfection. The Belgians were a little better than the

Norwich. But the Males! What about them? Well, they were just a little better than the Belgians. "Snowflake's" brilliant "Boarish," blushed a deeper red under his cup honours, while other birds of known reputation occupied the highest positions in their respective classes, as models of absolute perfection. In no class of birds is mediocrity so often met with, and perfection so seldom found.—W. A. BLAISTON.

## THIRSK CANARY SHOW.

THE first Canary Show held at Thirsk, took place on the 24th and 25th of last month, thanks to the indefatigable exertions of Mr. Thomas Bailey, Secretary; Mr. Thomas Bailey, Treasurer; Mr. Thomas Bailey, Committee; and Mr. Thomas Bailey, servant-of-all-work. It was a most excellent show, several of our most noted men doing as every true fancier ought to do, sending their birds to encourage a first attempt. Too much praise cannot be awarded to the Secretary, Treasurer, and Committee, for his determination in bringing this Show to such a successful result. I can only imagine he has had a stroke! His talks of silver cups for next year, and with him to talk to do. I am most happy to say that so far as I could see, everything in connection with the Show was conducted as it ought to be, and I can confidently commend Thirsk to the notice of exhibitors.

*Memo.* If you go with your own birds, and you want comfort, attention, ham, sheets redolent of lavender, eggs, politeness, and other items, valuable when away from home, inquire for Mr. Rose, at the Black Lion. The above articles are kept in perfection.—W. A. B.

## CHEAPER BEE-HIVES.

THE reply (page 38) respecting bee-hives seems scarcely to meet the case. Of course, I could buy a cottage straw hive with modern appliances for the treatment of bees, as described by a "MANCHESTER MAN" (November 14th), for 3s., and these I have constantly recommended to my cottagers; but for myself I wished for something a little more ornate, and the margin between 3s. and five guineas is wide. Without making a business or a hobby of bee-keeping, there are many who would willingly invest a sovereign or two for the encouragement of scientific bee-keeping, who may think, nevertheless, that five guineas might be devoted to an object of greater importance. I quite agree with you, that "good things are always expensive," and I never buy so-called "cheap" things; yet there should be some sort of proportion between an article and its price; but to give five guineas for a deal box (or after all the expense, ingenuity, and skill" expended on it, and I am quite prepared to admit that all these should be remunerated, it is still but a deal box), though of well-seasoned, and therefore expensive wood, I, for one, think that such prices defeat their object. You seem also to suppose that bees were included, but not only was there no question of bees, but even the above price did not include the "et ceteras" necessary to complete the hive, so that one could form no idea what the final expense might be. If there is one thing in such matters an Englishman likes to know, it is the extent of the liability he incurs. We also all know how increased demand follows a low tariff.—R. H. C.

The reply was not ours but from a correspondent. We quite agree with you in thinking that a cheaper wooden hive is a thing much needed. We believe that there are no patent rights at present existing in this country relating to hives. The only patent obtained for a hive within living memory, is probably that of Major Munn, whose term must, however, have expired many years ago. Those who sell expensive hives have, as a rule, little or no claim to be considered inventors.]

## MY FIRST APARIAN SEASON.

I HAVE in recent numbers of "our Journal," read of the failures in bee-keeping experienced by several of your correspondents, and as they might tend to discourage some who may wish to cultivate the acquaintance of "our little bee," I will endeavour to show that any one with average abilities may succeed in this interesting and, to me all-engrossing, pursuit, and give you the results of the first season of another "beginner." I have only had two practical lessons in apiculture, kindly given me by an old correspondent of yours ("J. E. L."), who, I regret, now never favours your readers with his interesting communications. I have, however, had the advantage of the advice of Mr. Woodbury ("THE DEVONSHIRE BEE-KEEPER") who has treated me with his usual kindness.

I began the year (1869) with three stocks in common straw hives. In May and June I had three swarms from them, one weighing 5 lbs., and two 7 lbs. each net; the latter you said at

the time were great weights. I had also two casts of fair size, and bought a swarm (7 lbs.) from a cottager, each of which was respectively inducted into, and soon filled the ten frames of a Woodbury hive, and at the end of the honey harvest averaged 35 lbs. net each. I left them the whole of their stores (as directed) for the first year, hoping my patience would be rewarded next season. In July I had the bees of a hive which I drove for a friend, given me, and soon had fed them up to 30 lbs., giving them a lot of clean empty comb to start with. On the 14th of July, I received two fine Lignurians queens from Mr. Woodbury, which, after a fortnight's anxiety and frequent trials for my bees were most vicious, and would not receive them sooner) I succeeded in joining to two black hives which are now with a very few exceptions all Italians.

In the latter part of October, I received a letter from my kind friend, "J. E. B.," saying he could spare me some queens. I went to him, was most hospitably received, and to my great joy found myself next day returning home with four Lignurians, which in three days, and without any difficulty, were each presiding over a new kingdom. These have also bred a few Italian bees.

The result of my first year's bee-keeping is: that I find myself the master of two Lignurian stocks, four, which in summer will be Lignurians, and one black stock—all in frame hives—my three old straw stocks, and one I have bought since, which I intend next spring to transfer to by driving, and fitting their combs into the frames of Woodbury hives, in order to enable me to Lignurianise them. Everything has gone well, and I think I may fairly claim to have been successful in my first attempt.

If any of your readers have tried cedar for bee-hives, would they kindly tell me with what result? I have just had a hive made of it, but the smell of the wood is so strong that I am almost afraid to use it. I should also like to know if any one has this season had erected a "propolis fortification," as described by Huber and Bevan? I have in one of my Lignurian hives, with an entrance 4 inches long, and 1 inch high, and which was nearly closed up by the bees. I cut it away, and have preserved it.—THE BEE-HIVE.

### ARTIFICIAL SWARMS.

I AM very anxious to have the experience of some of your correspondents who, like myself, are bee-keepers, as to artificial swarming, its success, or otherwise, and the best mode of effecting it. By opening your columns for this inquiry you will much oblige.—E. WALFOLLE, JUN.

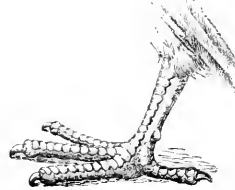
### OUR LETTER BOX.

BOOKS (Wm. B. G.).—"The Poultry-keepers' Manual," price 7s. 6d. You can have it post free from our office if you enclose that sum in stamps, and fourpence additional for postage.

PROFITABLE POULTRY-KEEPING (G. C.).—Your fowls have done well, and much of that is no doubt due to good management. The superiority of the Hamburgs' laying may in some measure be attributed to the age of the birds. They will always lay more than other birds; the drawback is that the eggs are small. Your present success should teach you wisdom. If, as we affirm, the Hamburgs have been so successful because they were of the age for laying, then set as many eggs as you require fowls at the proper time that they may attain the age of your present birds about Christmas, and you will have the same result. Your Brahmas and old hens will do to sit upon the Hamburg eggs; and to ensure profit, you will do well to sell all surplus birds as soon as they have done laying. If all would make their fowls as productive as yours, the number of eggs available for food would be doubled, but it can be done only by having a yearly succession of pullets.

VULTURE HOCK (Constant Reader).—The vulture hock is the projection of feathers behind the knee, and inclining towards the ground, as in the enclosed sketch. The feathers of a fowl's leg usually should be close round the knee, and the leg clean below it, like that of a man or boy wearing knickerbockers. The breeds in which the vulture hock is necessary are Serai-ta-cocks, Booted Bantams, and Falmorian fowls. Where the vulture hock conceals unwhisked feet, and where its presence, we are sorry to say, is considered a grave fault, are Cochins and Brahmas.

HAMBURG AND SPANISH COCKS' EARLOBES LISTENED (T. L. R.).—Wipe the damaged skin perfectly dry from the discoloured water, and then dress it with citrine ointment.



HARDY BANTAMS (E. L. J.).—We think the Game Bantams will answer your purpose best, and if there is any difference, the Black Reds are the hardiest.

EGG-EATING HENS (S. A. T.).—There is no effectual mode of preventing this cannibalism, except having the floor of the nest made as shown in page 427 of our No. 452.

TURKEY MANAGEMENT (Athenian).—Turkeys require to have their liberty, and do better on a light soil than a heavy one. They feed well on meal, barley, and sometimes a little maize, or a few oats for a change. Young and old do marvellously well on a meal made of oats, wheat, and a few peas and beans, all ground up together. It is, however, very necessary when it is desired to keep them in very high condition. Turkeys' eggs are good for every purpose. Brahmas and Bantams do not cross. We do not mean to say such a thing has never happened, but it is the exception.

PIGION ROTTER-FAITHED (Adonis).—We fear little can be done for your bird. Let him live on mild days, rub the bare places with sulphur ointment, and give him pills of one grain of calomel occasionally; but if the complaint is constitutional we fear it will break out again, and go on until he die. Do not let him have a bath while under ailment.

PAIRING CANARIES (Subscriber).—"Under certain conditions of heat, i.e., Canaries will pair almost at any time of the year, but it is not desirable that they should. Some breeders and the birds earlier than others later in the season, and some attach peculiar importance to a particular day, like a friend of mine who contended that Good Friday was the day to commence operations for the spring in his garden; but Easter falling late, my early penitence showing flood as his were coming in through the ground. It is best to be guided by circumstances, state of the weather, and so on; but it may be accepted as a rule, that early in March is the earliest time that they should be put together. Assuming that the birds are in condition, allow ten fortnights to a fortnight for the quarrels of courtship and the delights of the honeymoon, four or five days more for laying, and another fortnight for sitting, and put them up so that with these allowances the young will be hatched at a time when the old ones can see to feed at six o'clock in the morning. It is a long time for such little delicate things to go from dusk on a dull spring evening till daylight on a dull spring morning without a bit, which they must do, as no self-acting feeding-bottle like Mather's can be brought into requisition, nor can anything be done in a temporary way with a tea-pot," as was advised for Little Lord Dunsany. Some of the birds are very tame, and begin to feed one another. There is no knowing where such familiarities may end, and Canaries, like young ladies, are apt to place their affections upon an unworthy object, certainly not on the one selected for them by their mate. You are feeding very well, but I should discourage tinne-bread and milk. Pair the Jonyne Cinnamon with a Buff Cinnamon hen, either a Clear Buff or a Variegated bird, in which case you will get both Clear Cinnamons and prettily-marked ones also. You might even get a Crested Cinnamon hen. They are pretty birds. If you are a Monomane, and have other wives in store, remove the cock. Let him reign in a harem by all means, otherwise let him remain.—W. A. BLARSTON.

PARROT SELF-PECKED (Idem).—Let him have a tepid bath daily pouring the water through the rose of a watering-pot over the bird is a good mode. Give it no animal food, no hemp seed.

WINE ROPE (Idem).—Put a piece of coarse linen cloth on the end of the tin which will give the rope, and mix the wine into a dry one, putting 5 ozs. of powdered alum to thirty gallons. Roll and shake the whole well, and it will soon become fine.

PUPPY WITH WEAK LEGS (Trotter).—Sew a piece of stiff leather round the knee joint of the fore legs, and feed nourishingly. Outmeal and milk is good. Time will bring strength.

### COVENT GARDEN MARKET.—FEBRUARY 16.

A VERY light supply and thin attendance in consequence of the vegetables being much injured by the cutting wind and frost. Continental supplies are, however, well kept up, and prove their usefulness, we having had some excellent consignments from the extreme west of France. Potato trade is very heavy, although there has been a great falling off in the quality offered of first-rate samples.

#### FRUIT.

	s.	d.		s.	d.		s.	d.
Apples.....	1	6	0	Malberries.....	quart	0	0	0
Apricots.....	doz.	0	0	Nectarines.....	doz.	0	0	0
Cherries.....	doz.	0	0	Oranges.....	doz.	0	0	0
Currents.....	1	11	0	Peaches.....	doz.	0	0	0
Black.....	1	0	0	Pears, Kitchen.....	doz.	3	0	4
Figs.....	doz.	0	0	Pine Apples.....	lb.	3	0	10
Filberts.....	lb.	0	0	Pineapples.....	1	sieve	6	0
Golches.....	doz.	0	0	Pistachios.....	doz.	0	0	0
Gooseberries.....	doz.	0	0	Raspberries.....	lb.	0	0	0
Grapes, Hothouse.....	lb.	7	0	Strawberries.....	lb.	0	0	0
Lemons.....	doz.	2	0	Walnuts.....	lb.	1	0	0
Nuts.....	each	2	0	60.....	1	100	1	2

#### VEGETABLES.

	s.	d.		s.	d.		s.	d.
Artichokes.....	doz.	3	0	6	Leeks.....	doz.	4	0
Asparagus.....	1	10	0	14	Lettuce.....	score	1	0
Beans, Kidney.....	doz.	0	5	0	Onions.....	doz.	1	0
Broccoli.....	doz.	0	0	0	Mustard & Cress.....	doz.	0	0
Beet, Red.....	doz.	2	0	0	Onions.....	doz.	3	6
Broccoli.....	doz.	2	0	0	Pickling.....	quart	0	0
Brussels Sprouts.....	1	0	0	0	Pears.....	doz.	0	0
Cabbage.....	doz.	1	0	0	Parasprouts.....	doz.	0	0
Carrots.....	doz.	1	0	0	Parsnips.....	doz.	0	0
Capicorns.....	doz.	1	0	0	Potatoes.....	doz.	0	0
Cauliflower.....	doz.	3	0	0	Raspberries.....	doz.	0	0
Celery.....	doz.	1	0	0	Savoy.....	doz.	1	0
Coleworts.....	doz.	3	0	0	Shallots.....	doz.	0	0
Cucumbers.....	each	2	0	0	Spinach.....	doz.	0	0
Endive.....	doz.	0	0	0	Tomatoes.....	doz.	0	0
Fennel.....	doz.	0	0	0	Turnips.....	doz.	0	0
Garlic.....	doz.	0	0	0	Vegetable Marrows.....	doz.	0	0
Horseradish.....	doz.	0	0	0				

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	FEBRUARY 24—MARCH 2, 1870.	Average Temperature near London.			Rain in last 42 years.		Sun. Rises.	Sun. Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.	
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.		
24	Th	Meeting of Royal and Zoological Societies.	47.1	32.8	39.9	29	59	46	29	45	6	3	34	11	24
25	F		47.7	32.7	40.2	30	58	45	30	5	4	24	0	25	13
26	S		47.2	33.6	40.4	31	1	6	33	5	2	5	21	1	26
27	SUN	QUINQUAGESIMA SUNDAY.	47.7	33.5	40.6	32	52	6	34	5	46	5	24	2	27
28	M	Meeting of Royal Geographical Society.	49.1	32.8	40.9	15	53	6	33	5	20	6	31	3	28
1	Tu		47.4	33.6	40.5	16	48	6	37	5	50	6	39	4	29
2	W	ASH WEDNESDAY. Royal Horticultural Society, Fruit, Floral, and General Meet.	48.7	34.7	41.7	17	45	6	33	5	14	7	43	5	30

From observations taken near London during the last forty-three years, the average daily temperature of the week is 47.8°; and its light temperature 33.4°. The greatest heat was 62°, on the 25th, 1867; and the lowest cold 15°, on the 24th, 1859. The greatest fall of rain was 0.92 inch.

## LETTUCES, AND THEIR CULTIVATION.

**I**T would be difficult to ascertain the beginning or the end of the Lettuce season, for Lettuces can be produced at all times, the time of sowing having everything to do with the coming in of the crop. I will commence with the August sowings, or those calculated to furnish the winter and spring supply of salading.

## WINTER AND SPRING LETTUCES.

*Wheeler's Tom Thumb.*—A very dwarf, small, but good-hearted sort, crisp and good. It may be called a dwarf Malta, and, like it, is not hardly enough to stand our ordinary winters; nevertheless it is one of the very best for frames and hand-glasses.

*Dickson's All the Year Round.*—Larger than the preceding, but of very compact growth. It hearts well, and is very solid, tender, and crisp. It is one of the very best all the year round. It does not stand the winter unprotected, except in mild winters and sheltered situations.

*Dickson's Hardy Winter.*—This is a very superior variety of the Hardy Green, or Hammsmith, and is more hardy and compact, and forms a good heart. It is the best of all the winter and spring kinds, withstanding our ordinary winters well.

The above are Cabbage Lettuces.

*Bath Cos* (Black-seeded).—Very hardy, and having no equal for standing the winter. It attains a large size, hearts well, and when tied up, as it ought to be, it is white, crisp, and of excellent flavour. Some object to it on account of its brown leaves, but this objection is removed by tying up so as to blanch them.

These are all the winter kinds which need be grown. If there are any better I should be glad to know their names, as I believe I have grown every kind of Lettuce, both Cabbage and Cos, winter and summer, and I have found none equal to those named for winter and spring use, and those which I shall name for summer and autumn salading.

The 1st of August, dig and well pulverise the ground intended for the seed bed, choosing an open situation, and tolerably rich soil. Tread the ground firmly after digging, as if you were intending to sow Onions, and then rake level. Scatter the seed regularly and thinly, and cover with soil from the alleys. If we could make sure of all the seeds growing, they might safely be placed half an inch apart, and very advantageously, as nothing is so much against the plants doing well as their being crowded in the seed bed. If the weather be dry, water as required, so as to secure speedy germination and the free growth of the plants. For this sowing, Tom Thumb and All the Year Round are the kinds I like best.

At the end of August a bed of rather littery dung should be made up, sinking it out evenly, and beating it firm. It need not be more than 1 foot high in front, and 18 inches high at back. This bed ought to be made on a hard bottom, and the situation, though open, should be sheltered from the north, east, and west. The frame should be put

on, and in a week take it off, level the bed, replace the frame, and put 6 or 8 inches of soil in the frame. Any moderately rich rather light loam is suitable. Let it be placed evenly over the surface, and in the course of another week the plants may be put out in lines 6 inches apart, allowing the same distance between the plants. This amount of space will answer very well for Tom Thumb, but All the Year Round should be allowed 9 inches between the rows. Water, put on the lights, and shade the plants from bright sun until they become again established; then remove the lights altogether, still having them in readiness to ward off frost and heavy rains which may occur in October or November, and if the nights are very severe, a covering of mats should be given to ward off frost. The lights should be drawn off whenever the external temperature exceeds 46°, admitting air at other times when above freezing by tilting the lights at their back. The plants should be frequently examined, and the soil lightly stirred between the rows, every yellow and decayed leaf being removed as it appears.

When frosty weather sets in—in November or December—and continues during the day as well as night, the sides of the frames must have dry litter placed against them, but not of a kind likely to ferment, and this will keep the frost from entering by the sides of the frame; and to protect the lights, put on a covering of mats, and over that a sufficiency of straw to keep out frost, the materials being allowed to overhang the frame about 6 inches all round. The frame should not be opened as long as the temperature is below 33°, nor need the protecting material be removed as long as the frost continues day and night; but at all times when the temperature is above 33°, the protection should be removed, and every opportunity taken to admit air; when practicable remove the lights, for nothing is so beneficial as a thorough airing. If the frost should enter the frame do not uncover until the plants are thoroughly thawed. No water must be given after October, unless the soil become very dry, then water, but without wetting the surface much.

If all go on well there will be nice Lettuces with compact heads and hearts in November and December, the Tom Thumb being the first fit for use, and with proper care as above, a few frames will afford a supply throughout the winter. Every alternate plant and row should be taken out; this will give the plants more room to grow, and standing further apart the soil can be kept sweeter by stirring, and air more freely admitted to the plants. The first cuttings or thinnings will furnish the supply for a long time. The frames must be good, and the lights glazed, so as to be drip-proof. It is useless attempting to have winter Lettuces without such appliances. A frame 9 feet by 6 feet will hold 324 plants of Tom Thumb at 4½ inches apart every way, and one of the same size filled with All the Year Round at 6 inches apart, 216. Allowing ten for each salad, including casualties or losses, each frame will afford a month's supply, so that we may calculate how many frames to plant to keep up a supply from November to March inclusive.

About the 15th of August the principal out-door spring

or winter crop, as it is called, should be sown, choosing an open situation, and to secure good growth watering should be resorted to if the weather be dry. The kinds should be Hardy Winter, Bath Cos, and All the Year Round. The third week in September the plants will be fit to plant out. A portion should be put out under hand-glasses on a south border, taking out trenches 2 feet wide, with 3 feet spaces between, and laying the soil from the trenches on the 3 feet spaces, so as to raise them about 9 inches higher than the bottoms of the alleys. A dressing of leaf soil or any rotten manure may be given, but not unless the soil is light and poor. Though it is well to dig and pulverise the soil, the firmer the ground is for planting the better. The plants are hardy or tender in proportion to the firmness or lightness of the soil. Place the hand-lights on the ridges as closely as they will stand, and those with moveable tops are best. Those with fixed tops and bell-glasses, or whatever other name they may have, are practically of no value in England, however well they may answer in a brighter, drier climate. The great difficulty of the horticulturist in this country is his moist soil and climate and cloudy sky. The plants may be put in about 4 inches apart, the needful watering given, and the tops of the hand-glasses taken off; the tops may remain off until the weather becomes frosty, then put them on at night, taking them off every morning if the weather be favourable; or if cold, but above freezing, the tops may be placed cross corners as regards the bottom, but whenever the weather is mild remove them altogether. In mild weather, however, heavy rain may fall; then the glasses ought to be tilted, and thus air be admitted to pass through. In very frosty weather mats should be placed over the glasses at night as long as the frost continues, and should not be removed in the morning until the plants, if they are frozen, have thawed. If the plants become frozen cover them with mats, and keep them in darkness until thawed. The soil about the plants should be frequently stirred, and every decaying leaf removed.

To spring the plants should have plenty of air, and to bring them forward admit it early in the day; when the moisture is dissipated replace the tops of the glasses, and if the weather is mild place the tops cornerwise. Watering must be attended to as required. Every alternate plant may be taken out as required for use, and this will allow of those left attaining a larger size. The plants under hand-glasses will form a succession to those in frames, and afford the first out-door spring supply.

If no plants are put out in autumn under hand-glasses, the Hardy Winter Lettuce should be planted on a south border in beds 4 feet wide, the lines being 9 inches apart, and the plants 6 inches from each other in the lines. Both the Hardy Winter and Bath Cos should also be planted in front of a south wall, and these will give Lettuces after those under glasses, or if none were so planted, they will produce the first spring supply. They should not be planted near walls where the drip falls from the coping. These plantings should be made at the beginning of October, putting out the best plants at the above-named distances. The smaller plants may be planted in nursery beds on a south border, and in spring every alternate plant and row should be transplanted with balls. The soil where the plantation is made should be firm, and the soil about the plants must be frequently stirred, but not so deeply as to interfere with the roots. The Bath Cos stands a long time in spring without running to seed. Good breadths of it should be planted out in autumn, both in beds on south or other warm exposures, and under the shelter of walls with south or west aspects, nursery beds being made of the smaller plants for planting successional beds in spring, which in ordinary seasons will take place in March. Sometimes these smaller plants best survive the winter, but if both those in permanent beds and those in nursery beds survive, the latter form a good succession to the former.

Another sowing of Hardy Winter Lettuce and Bath Cos should be made towards the middle of September, and on a south border, making the ground firm, and sowing just thickly enough to secure a good stock of plants; if they come up too close together they may be thinned out, as they very rarely succeed if left too crowded in the seed bed; indeed, I have known all the plants in the alleys stand the winter, whilst those in the bed itself all perished—a result I can only account for from the plants being rendered tender by crowding and the want of solidity of the soil. If the plants from this sowing survive, they may in March be planted out, and will form a successional spring crop.

The ground for winter Lettuces should be warm and dry,

and the soil light, but made firm, and moderately rich. If it is very heavy and wet Lettuces seldom succeed, except when protected by a wall or other shelter, and hand-glasses or frames are of no assistance on such soils, unless they are placed over Lettuces planted on beds considerably elevated and inclining to the sun.

What may be effected by the patent plant protectors of Mr. Rendle in growing winter Lettuce remains to be determined, but they appear to possess many advantages over hand-glasses and frames, and are well worthy of trial. Those having had experience of them would do well to make it known.—G. ABBEY.

(To be continued.)

## FLORAL CRITICISM.

I HAVE read with much pleasure the remarks of Col. Scott on this subject in THE JOURNAL OF HORTICULTURE, page 101. So aptly put, they should do something to abate the pretensions of those little critics who are fuller of themselves than of the objects they profess to love, or the subjects they profess to teach. If horticulture and floriculture are to hold their own in the future, to say nothing of advancing, we must act on wide and general views. It is natural that the little critics should fight against this, for they are shrewd enough to perceive that if wide and general views prevail the death-knell of their influence is sounded.

Those who study plants may be classified in various ways. For my purpose I will here draw them into three classes.

1. Those who hold that the wild flowers are the loveliest and the best.

I would not dispute the point that wild flowers are perfect as such, but I cannot grant what some of the advocates of this view contend for, that wild flowers are absolutely and under all conditions the loveliest and the best. The wild Rose met with in dingle and dell, the wild Sloes and the wild Crab abounding in wastes and in hedgerows, are perfect and satisfy us there, but in our gardens we prefer the cultivated forms of flowers and the cultivated flavours of fruits. Unquestionably I prefer a bed of double red or double white Roses in my garden to the wild forms of the Rose, as I prefer a dish of Green Gage Plums or Ribston Pippin Apples to a dish of Sloes or Crabs for my dessert.

2. There is another class who, by reasoning, seek to determine from within what a flower or a plant should or should not be.

I have no wish to condemn altogether the practice which has been and still is adopted by some, of drawing on their own imagination or inward resources, of setting up from within an ideal of perfection, and henceforth rejecting every variation in nature that does not culminate in that point. This method may result in the uprising of many objects of beauty, but I fear that it also crushes out, for a time at least, much that is or might become beautiful. This method favours the adoption of one preconceived line to the exclusion of the many collateral lines, which co-exist and are equally open to development. Here, too, I suspect is the source of the many fantasies met with in gardening, arising from a lack of knowledge or an incorrect taste—the dressing of florists' flowers, the tight lacing of exhibition plants, the gumming of Pelargoniums and pinning of Hymenophyllums, which have not only been practised by some but defended by others. I refer to the setting-up of a false standard from within. I go further here, and say that the disservice into which many florists' flowers have fallen is due to this unnatural system, which those who practise it call improving (?) nature.

3. But there is another class, who seek the same object as the last by building up from without rather than from within, who go to nature for their first lessons, grounding their aspirations on a close observation of her tendencies, and working to aid in their development.

It seems to me that the most natural and best course of labour that we can pursue is to watch the tendencies of wild plants when brought under cultivation, seizing upon the slightest departures from the type, endeavouring first to fix and afterwards to develop them. If we do this we have, instead of one line, several lines to follow, and more important results will likely accrue from labouring to develop every tendency to variation than from following any one tendency however indifferently chosen. To say, however, that by this plan we "improve" nature is not, I think, quite correct—at least not in the sense in which the word is sometimes understood.

Wild plants possess an inherent tendency to sport or vary, which increases when they are brought under cultivation; the parts of flowers naturally enlarge, increase in substance, vary in colour; the fruits naturally increase in size, and vary in form and flavour. And how wonderfully is the power, wisdom, and beneficence of the Creator displayed in this fact. Herein is man's promised recompense for toil. Man does not improve Nature in the sense of creating or originating; he is merely an instrument in the Creator's hands for developing His designs. The work is man's, the glory is God's.—WILLIAM PAUL, *Paid's Nurseries, Waltham Cross, N.*

## WINTER-FLOWERING ORCHIDS.—No. 3.

### ANSELLIA.

RESUMING my remarks upon these plants, which have been so gay, and rendered the plant houses so cheerful, during the bitter dreary days of the past week, I must hasten to record the beauties of this old and undeservedly neglected genus. There are several varieties of the species here mentioned; all, however, succeed under the same treatment. During the summer, when the growths are in course of development, the temperature should range from 70° to 80°, but after the stem-like pseudo-bulbs are completed, the plants may be removed to a much cooler and drier atmosphere. These pseudo-bulbs produce from their summits, during December and January, large panicles of very attractive flowers, which are admirably adapted for cutting for bouquets.

**A. AFRICANA.**—This plant is very abundant about Fernando Po, and, indeed, the western coast of Africa generally. It is a tall-growing plant, forming dense tufts of stem-like pseudo-bulbs some 4 or 5 feet in height, terete, sheathed with the bases of the leaves, which are somewhat ribbed. The leaves are produced towards the top of the stem, and are from 12 to 18 inches in length, by about 11 in breadth, strap-shaped and lanceolate, leathery in texture, and deep green. The panicles of flower are terminal, much branched, and nodding; the sepals and petals oblong-ovate, yellow or yellowish green, spotted and barred with rich brown; lip rich bright yellow in front, side lobes streaked with brown. It lasts fully two months in full beauty.

### SOPHRONITIS.

A genus of small-growing plants, veritable gems in their way, and most easily grown, succeeding best on blocks of wood, or in small baskets with a little peat, sphagnum, and pieces of charcoal; in this way I have seen them growing and blooming beautifully in a Wardian case in company with Ferns and other ornamental-leaved plants, so that it will be quite evident no great amount of heat is necessary for them. Indeed a temperature and atmosphere such as recommended for *Oncotoglossums* are admirably adapted for them, as they are all natives of high mountains in Brazil.

**S. GRANDIFLORA.**—The pseudo-bulbs of this magnificent epiphyte are somewhat ovate, bearing on their summit a solitary oblong acute leaf, thick in texture, and dark green. The flowers are also produced from the apex, and singly, broad, fully expanded, and some 2 inches or more in diameter, fleshy, and of a uniform bright crimson. It lasts a very long time in flower, and is one of the first kinds a beginner should invest in.

**S. PTEROCARPA.**—A very close-growing plant, which succeeds best upon a block of wood, and is well adapted for suspending in a Fern case. The leaves are thick and fleshy, somewhat oblong, and dark green. It produces a terminal corymb of rosy flowers tinged with purple.

**S. CERNEA.**—Leaves ovate-oblong, producing a somewhat few-flowered terminal corymb of bright scarlet flowers, with a small yellow lip. It thrives well on a block of wood in a cool house, and is very desirable in winter on account of its bright-coloured flowers.

**S. VIOLEACEA.**—This is a very distinct plant from all its congeners, both in growth and colour of flowers. The pseudo-bulbs are small and oval; the leaves solitary, oval, and very narrow; the flowers also solitary, small, and rich violet in colour. From the large masses which are imported, this must be a common species in its native habitat. It forms a pretty object in a Wardian case, or in the company of the cool *Oncotoglossa*.

### LYCASTE.

In this genus are found some of the easiest-grown species in the entire order, and all succeed well under cool treatment, potted in fibrous peat and sphagnum; the drainage should be

good, as they like an abundance of water at all times, but more especially during the growing season.

**L. SKINNERI.**—This splendid plant was named in honour of a most enthusiastic lover and collector of these plants, and a most worthy man—the late G. C. Skinner, Esq. The varieties are very numerous, and some of them very richly coloured, with a beautifully-marked lip, whilst others are paler. The pseudo-bulbs are oblong-ovate, somewhat compressed, and bearing on their summits long, flattened, oblong-lanceolate, dark green leaves. The flower spikes are produced from the base of the pseudo-bulb, and bear a single large flower, several scapes rising from the same bulb. The sepals are succulent, large, thick, and fleshy, about 2½ inches long, and upwards of an inch wide, oblong, obtusely pointed, sometimes waxy white, at other times delicate rose or deep blush. Petals smaller than the sepals, succulent, slightly roiled back at the end, varying from bluish to sepia. The lip three-lobed, the front lobe recurved, in *L. Skinneri* varying from white to rosy crimson, at other times reddish. These *Lycastrum* attain their beauty for many weeks, and will grow and bloom profusely even in a sitting-room. This *Lycastrum* is found abundantly in the cool parts of Guatemala.

**L. DIERCKMANNI.**—Though by no means so showy or attractive as the preceding species, it is a very useful plant for winter blooming. In habit of growth it resembles *L. Skinneri*. The sepals and petals are dull brown, marked with white and orange spots, and the lip is rich orange. Treated the same as *Oncotoglossum* it succeeds well, and forms a fine, large plant. Native of Mexico.

**L. SPERMATOPHYTES.**—An old common-growing plant, which produces a profusion of small rich yellow flowers, which are very fragrant and useful for bouquets during the dull months. Native of Mexico.

**L. CRUCIATA.**—The flowers of this species are medium-sized; sepals and petals deep orange; lip a deeper shade of the same colour. Though sometimes despised by high-class Orchid-growers, it is, nevertheless, a showy plant, and easily managed in the cool house. Native of Guatemala.

**L. LANCEOLATA, L. DANCANTINENSIS, and L. SCHILLERIANA** are leafy flowering plants, very useful in winter when flowers of any kind are scarce, but their paucity of colour causes them to be almost turned out of Orchid collections.—**EXTRACTO CHEN.**

## MANURE IN POTATO DRILLS—CUT SETS—PREPARING GROUND.

"H. A. CURRENT," "TINA," and "NOVUS AMICUS," ask questions to which the following replies:—

I object to placing the sets in raw stable manure, because manure—let it be fibrous straw or otherwise—must be sufficiently soluble before the roots of plants can take it up for assimilation; and as "H. A." says, the practice is universal to place the manure in the drills in his part of the kingdom, "I think in dry seasons he must have often observed that that 'good old plan' will, when the Potatoes are dug or ploughed up, reproduce in a state of dry thatch-like dikes, which would take a great quantity of moisture to even wet them; at any rate, it cannot be said to have gone towards producing Potatoes, which it was intended to do. In fact, it has been the means of doing more harm to them than good; and to make bad worse, it may possibly have been left to become dry on the surface of the land before being even placed in the drills. On the other hand, I consider it cannot be otherwise than bad practice to place a pulpy tuber, which the microscope informs us is of the most delicate organisation, in a mass of corruption, even should the sets escape injury. When in a poor soil dung is used in this way, under the idea of making the most of it, the young plants may grow freely at first through the impulse of the moisture, but as the roots lengthen and strike out in search of provision, they do so into a barren soil, constituting, in fact, an abundance of machinery with a scarcity of material just when the formation of young tubers, and the advancing state of the growth of the plants, require an extra supply of nourishment. The start they received at first from the raw liquid merely secured foliage to become starved and unfruitful for lack of what the plants cannot take up, or because they have not time to wait for the more substantial materials to dissolve. No; twenty bushels of dung per acre, well worked into the body of the soil, 2 feet deep if possible, in October or the beginning of November, and quicklime added as a top-dressing at the rate of seventy bushels per acre (providing the soil is not

on the chalk formation), just before the Potatoes are planted—would be more likely to produce twenty-five tons of first-rate tubers to the acre than double that quantity of dung on the "universal" system of "11." would be to produce fifteen tons of inferior Potatoes, and the land would be left in excellent tilth for Wheat by the former practice.

"*Novus Amicus*" has "3 lbs. of new sorts of Potatoes," and he wants to make the most of them. He supposes they ought to be cut into "two or three pieces each." He wants to produce as much seed as possible from them for planting another year, therefore I advise him immediately to plant the Potatoes whole about 3 inches deep, with every eye and shoot intact, in the centre of a square yard of ground. Let him watch carefully for the foliage appearing, and as it grows, bear the stalks or haulm gently outwards, and keep them so with a pressure of the soil, as one would prevent young Cucumber plants from crowding too closely in a hill. Keep on doing so, and moulding up and overhead with fresh soil till the second week in May, when all danger from frost is over, and then no more mouldings, but continue to spread out the haulms to benefit by the sun and air, and till they equally cover their allotted surface of 1 square yard, or even half as much again in the case of the Queens and Paterson's "new white Kidney," which I presume to be Paterson's Victoria. The tubers will produce in this way the greatest quantity of Potatoes with the greatest certainty. "*Novus Amicus*" intends to plant also on soil which has been previously a grass field, and subsequently for two years under Potato crops. He has spread rather thickly over it a large heap of soil, chiefly of decayed vegetable matter, which he has been two years in collecting. Very good. Let me ask "*Novus Amicus*" if he has a night-soil pit? If so, let him have it emptied on the first fine night, and well mix with it during the operation surface soil from the garden, as dry as it can be had, or road scrapings; and in two days or so afterwards have it turned over again along with more dyish soil, and the drier the earth the better for the purpose, as it absorbs the smell all the sooner. This compost should be wheeled by degrees to the ground whilst it is being half-trenched in the manner I have pointed out in page 57, and a few days before planting apply quicklime as set forth in page 58; and as the land is "a light loam, and looks exceedingly good," I would give it a trial by planting half of it on the flat, and the rest on the ridge-and-trench system. I should expect to raise better Potatoes on the latter than on the former plan, which "has not hitherto produced very floury ones." There would not be much difficulty, I should think, in procuring from the list I gave at page 58 Nos. 1, 3, 5, 7, and 13. I see No. 11 is advertised, and for the rest I fear those desirous of obtaining them will have to wait and watch for their being advertised.—ROBERT FENN.

#### DWARF HYBRID PERPETUAL ROSES—THE MANETTI STOCK.

I HAVE threescore of the above on the Manetti stock, planted in soil originally very poor, but improved by good manure and marl. I had some good blooms last autumn, but due, I am afraid, to the potting soil in which the plants were bought. The coming season will show if my endeavours to improve the soil have availed me anything.

I am now desirous to know what advantage Hybrid Perpetuals on the Manetti stock have over those on their own roots. I have read your Journal since the beginning of October last—say from page 219, but have not been able to gather why I should have all my Roses on the Manetti. Is it to the interest of Rose dealers to recommend Roses on the Manetti?

Charles Lefevre and Horace Vernet have not grown well with me, but John Hopper, Senateur Vaise, Duke of Wellington, M. Boucaine, Madame de Cambacérès, and Prince Camille de Rohan have done well.—H. C.

[The first great advantage that Roses huddled on the Manetti stock have over those on their own roots is that at least two seasons are gained, as the bud is inserted in a Manetti cutting which has been struck two years, and by the time the Rose is sent out from the nurseryman the roots of the stock are three years old. The Manetti, also, as a rule, strikes more freely than most Roses, is very hardy, and a surface-rooter, and has this great advantage over the Dog Rose, that it never sends out root suckers. We know there are some amateurs who complain of suckers, but there always come

from dormant eyes in the base of the stock, which eyes ought always to be cut out with a sharp knife when the Roses are planted, and it is the result of carelessness when any are left; but even if a few escape the eye of the planter, they are very easily removed whenever they grow. Another advantage of the Manetti stock is that when Roses on that stock are planted, the union of the Rose with the stock is, or at all events ought to be, placed from 2 to 3 inches under the soil, and after the first season the Rose establishes itself on its own roots, as well as on those of the Manetti. This inclination of the Rose to root from the junction of the bud and the stock is much increased if a small nick is made with a knife in the wood of the Rose, near to its junction with the stock, at the time of planting. Another advantage which the Manetti stock has (as pointed out by one of our correspondents in vol. xvii., page 356), is that it enables nurserymen to meet the demand for new kinds of Roses, and send out new Roses much sooner, and at a much less cost than they otherwise would be able to do. If nurserymen had to depend upon cuttings from Roses, or if amateurs insisted upon having new sorts of Roses on their own roots, it would take a much longer time before a sufficient stock of any new sort could be obtained.

The Manetti stock is more suited for light soil, or ordinary garden soil, than the Dog Rose stock; and on the other hand, wherever the soil is strong and heavy, the Briar ought to be used; but in general, where a bed in an ordinary garden is especially prepared for Roses by a liberal supply of manure and deep trenching, &c., there is no better plan than having all the plants on the Manetti stock, and planted deeply, choosing the tall-growing varieties for the centre, and the dwarfier sorts for the outside of the bed.

As the Roses which you have planted did well last year, we do not think the improvement is owing to the soil in the pots in which the plants were bought, but to that in which you planted them.

It is certainly to the interest of dealers to recommend the Manetti stock, but it is to the interest of the public as well. Many of the strong-constituted Roses, however, do very well on their own roots, such as Gloire de Dijon, Général Jacqueminot, Charles Lefevre, John Hopper, &c.; and you would do well to strike some of these varieties yourself, and make a separate bed of Roses on their own roots.

You will find full instructions for pruning Roses in the Rev. S. R. Hole's book upon Roses, and also in one published by Mr. Cranston, of Hereford.]

#### ELMS SEEDING.

IF "G. N." means the Elm commonly growing in our woods, hedgerows, and pastures, I say that it both fruits and brings its fruit to perfection, for I have gathered seeds from Elms so growing; from Elms growing as young trees, pollards, &c.; also from Elms forming as fine trees as one could wish to see. I have helped to sow these seeds, and attended to the young plants raised from them until they have been planted out in the same woodlands where part of the seeds were gathered. There are plenty of trees here in woods and pleasure grounds that fruit every year, though in quite another part from where I have gathered the seeds.—J. W. K., *Torshire*.

#### THE LENTISCUS OF CICERO.

Is there any ground for the statement of Cicero ("De Divinatione," lib. i. ch. ix.) that the Lentiscus (said to be the Pistacia Lentiscus, or Mastich tree, producing the gum Mastich of commerce), flowers three times in the year, and produces three crops of fruit, marking by its flowering the three seasons of ploughing? I have searched many botanical works in which I have found the tree described, but no mention of this peculiarity.—C. W. D.

[We have no doubt that the Lentiscus mentioned by Cicero is the Pistacia Lentiscus, and certainly in no place of its growth does it ever bloom thrice, and, consequently, never bears three crops of berries annually. The Lentiscus is mentioned by Cato, Varro, Columella, Palladius, and Pliny, but by no one of them is a description of the shrub or its habits given. Their notices are confined chiefly to the resin it yielded, and its uses. We think Cicero did not intend saying that the plant yields three crops of berries annually, and he certainly says nothing about its flowering. His words are, "Vera semper viridis, semperque gravata Lentiscus, triplici solita est grand-

esseere fortu; ter fruges fundens, tria tempora monstrat arandi," which we translate—"The true Lentic always green, and always teeming, is accustomed to thrive to grow heavy with produce; thrice pours forth its produce; thrice points out the season for gathering." It would suffice to justify our translation that Cicero was speaking poetically, but, besides, we may add that "foetus" and "fruges" are used in the classics for produce of many kinds, and "aro—arandi"—is to gather as well as to plough. That our translation is correct has the conclusive evidence that in Chios, the Greek island where the shrub is cultivated, there are now three harvests of its resin. The first incisions in its bark are made from the 15th to the 20th of July, the second about the 27th of August, and the third about the 25th of September.

### THE ROYAL HORTICULTURAL SOCIETY'S ACHING TOOTH.

My friends call me a conservative old fog, because I inveterately oppose all changes. I disregard their impudence, and I rejoiced to see that I have brother "conservative old fogies," who are quite in accordance with Rousseau, where he says—"I oppose the removal of an old post if I have long been accustomed to see it." I once knew another "conservative old fog," who declared "a letter was not worth having new, for he paid nothing for it." I called upon him one morning and found him with his face tied up. He said he was going to the dentist to have an old tooth removed. I remonstrated. I urged that he had had it so many years—that it had been so serviceable—that it was a prominent tooth—that he might use it for ten or eleven years longer; but these conservative representations did not convince him; his reply was, "It is always aching." I fear that that is the reply the Council of the Royal Horticultural Society will make to all who urge upon them the retention of the Chiswick Garden.—G.

### GARDENS AND GARDENING AROUND HAMBURG.—No. 4.

MESSRS. ERNST & VON SPRECKELEN'S NURSERY, ALTONA.

This nursery, which is situated on the same road as that of Messrs. Booth, but a little nearer Altona, is chiefly devoted to seed cultivation, in which the firm do a large amount of trade, chiefly by export. The display of Asters at the time of our visit was very fine, every colour being arranged in beds by itself. Some beds of the Dwarf White Chrysanthemum variety were very fine. The double sorts of Zinnias were also extremely fine; indeed, we never saw finer, the flowers being very large and as regularly double as any Aster. If these gentlemen would only supply us with seeds which would produce as many good flowers we should be satisfied. It is needless, however, to give a long list of the many plants grown for seed here. They are principally annuals such as we have noticed, and which in the mass produce a most gorgeous display; by their beauty, as seen from the high road, they attract a considerable amount of attention.

DR. ETATSRAH BAUH'S, BLANKENASE, HOLSTEIN.

This is one of the first places which would attract the attention of the passenger by steamers up the river Elbe. It stands prominently forward as some place of note by the fine appearance of the trees and plantations, with the pleasant winding walks therein, and the terrace 200 yards long by the river's bank, with the rockwork in the background, and several high and rather quaint old towers on the highest ground, from the top of which very fine and extensive views of the surrounding country and that of Hanover may be had. The house stands high above the river, and a good way from it. The views from the various points are very fine. The gardens are chiefly remarkable for their extreme neatness and fine order, the grass being quite as fine as any in England. Fuchsias in the houses were well cultivated, and we observed some very fine plants of *Cycas revoluta*, &c. The flower garden which is of pretty fair size, was well filled with the usual plants in good array. *Artemisia argentea*, as an edging, looked very charming. The obergartner is Herr Eosenberg.

HERR J. C. GODEFFROY'S, DOCKENHÜDEN, BLANKENASE.

This is a fine noble place of considerable extent, with very neat and beautifully-kept grounds, pleasantly situated on the banks of the river, of which there is a fine view from the house,

standing, as it does, at a considerable elevation above the river, and some distance off. The fine old Lime trees and the shrubs (*Thuja*s, &c.), with the finely-kept walks winding up and down along the slopes by the river, give to this place a great charm. The chief feature, however—that in which it stands prominently forward, is the magnificent display of bedding plants in the flower garden. A space of some two or three acres is devoted to this style of gardening, and very seldom have we seen better-filled beds, or a more brilliant and profuse show of colour, and withal well arranged.

It would be tedious to describe in detail the various arrangements, and not particularly instructive. The ground is of the old geometric form (square or nearly so), cut up into figures, with a fountain in the centre, where some hundreds of gold fish were sporting. Some of the scroll pattern and ribbon flower-beds were exceedingly rich in flowers; the display of *Verbenas* was something remarkable, being such as it seems now an impossibility to secure in this country. The constitution of the *Verbena* seems weaker than it was in olden times, and the plant far more difficult of cultivation. Purple King, our leading sort, was here outstripped in every point by a seedling raised by Herr Sanders, the intelligent obergartner, and which is the same as Purple King in colour and habit, much larger in the flower and truss, and retains the same fine definite purple hue to the last. We anticipate for this a front place. As a white, *La Candeur* was quite its equal in every respect; and as a scarlet, *Miss Trotter* stood out well. Some lines of Mrs. Pollock *Pelargonium* were very effective, and the various groups of *Cannas*, *Castor Oil* plants, &c., were all that could be desired. Part of the flower garden is on gravel, part on grass, of which there is a considerable extent. Nowhere have we ever seen more smooth and finely-kept lawns than here; they were as smooth as any carpet, and not in all England do we believe could there be found any lawn to surpass in neatness, and in the fineness and quality of the grass, those under Herr Sanders' care. In connection with this we have to note a very neat and efficient mode of preserving the edges. The keeping grass edgings neat, straight, or true to form, is a well known, is a very tiresome and difficult matter. They will, in spite of the greatest care in cutting, get quite out of form. Herr Sanders obviates this by providing a permanent edging of thin sheet iron, 3 inches wide, which is fixed along the edge just level with the top of the grass, and nothing can exceed its neatness. The cost of such an edging cannot be great, and the neatness secured, and the saving effected in edging, must be well worth the outlay.

Fish—goldfish, may not have much to do with gardens, yet they are frequently to be found there, and serve as an article of adornment. Gardeners do not often have the rearing of them, yet we cannot refrain from noticing them as seen at this place. These pretty creatures are reared by the thousand for sale, about five thousand being disposed of every year. In a shallow stream of water in the park, about 20 feet in width, they are reared and fed—there thousands of them could be seen at a time; and on standing on the small wooden bridge, whence their food is thrown into the water, and stamping one's foot so as to make a slight noise—the signal for their call to meals—it is a wonderful sight to see the thousands upon thousands of these creatures that come swimming forward in obedience to the call, until the water is lividly scarlet and gold with their dazzling-coloured bodies. It is wonderful also to notice the silent (to us) communication that must be going on amongst them, to watch the first comers on finding out the false alarm, return and stop the upward progress of the later and more distant voyagers. What a pretty and interesting feature in a park is this!

### FLOWER POTS.

It frequently happens that advice given by various writers on the same subject is somewhat conflicting, but I believe that most authorities agree that it is objectionable to place pot plants, such as *Pelargoniums*, &c., on acid level board shelves. Almost every cultivator of pot plants is aware that a free current of air through the drainage to the roots of the plant is indispensable for healthy, luxuriant growth, and to obtain that desideratum it is requisite, according to the present make of flower pots, to place them upon some porous substance, or to raise them a little from the shelves on which they are placed. I am inclined to think that the inconvenience and trouble of doing so might be obviated if the makers of flower pots would

adopt the following plan—viz., increase the thickness of the bottom of the pot, and make four or more semicircular grooves across the bottom  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in depth, and from  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in width, according to the size of the pot. If such a flower pot were placed upon a shelf, a free current of air would be continually passing between the shelf and the bottom of the pot to the roots of the plant.—W. MILLER, *Sherborn*.

[A flower pot nearly similar to that which you suggest was adopted by Mr. Hunt twenty years since, and a drawing of that and several others was republished in vol. xiv. of this Journal. The objection to any intricacy in the form of a flower pot is that it greatly increases their price.—Eds.]

## ENTOMOLOGICAL SOCIETY'S MEETINGS.

THE annual meeting of this Society was held on the 24th of January, when an address by the President, Mr. W. H. Bates, was read and ordered to be printed. It contains a sketch of the progress of the science during the past year, together with many interesting remarks on the geographical distribution of insects, the question of natural boundaries, and of island faunas. As by the laws of this Society the Presidency can only be held for two years by the same person, and as Mr. Bates's tenure of office had expired, Mr. A. R. Wallace was elected as his successor for the ensuing year.

The first February meeting was held on the 7th inst., Mr. Wallace being in the chair. After returning thanks for his election as President, and pronouncing a warm eulogium on his predecessor in the chair, the President nominated Messrs. Bates, Pascoe, and Parry to act as Vice-Presidents. The thanks of the Society were especially tendered to William Wilson Saunders, Esq., F.R.S., for his liberality in presenting the Society with the twenty-four engraved plates illustrating Mr. Pascoe's volume of descriptions of the Malayan Longicorn Beetles, recently completed and published by the Society.

A new part of the Society's "Transactions" was upon the table, together with a number of new entomological works presented since the last meeting, including the "Transactions" of the Russian and Italian Entomological Societies. A valuable memoir by Messrs. Planchon and Lichtenstein on the new Vine-root and Vine-leaf disease, produced by a species of *Phylloxera* in the south of France (which has also, unfortunately, made its appearance in this country), was also on the table. The Secretary gave notice that the Council of the Society had resolved to renew the offer of two prizes of five guineas each for the best "Memoir on the Anatomy or Economy of any Insect or group of Insects," to be sent to the Secretary on or before the 30th of November next.

A note by Mr. R. Trimmen, on the economy of some species of *Pausiside*, observed in the Natal district, was read. Mr. F. Smith exhibited a species of *Loenst* which he considered to be the true *Loenst migratoria* of Dufour, captured in Scotland; and Mr. Bond exhibited some specimens of a nearly allied species, taken near Plymouth and Falmouth. Another distinct species of equal size, but with a different-shaped thorax, had been figured by Curtis, from Ireland, under the name of *Loenst christi*.

Mr. Bond exhibited some singular varieties of the common English Graying Butterfly, in which the wings partake of the markings of both sexes; also a case of silk cocoons spun by the larva of *Bombyx Yamamai*, B. Pernyi, and various varieties of *B. Mori*, sent by Dr. Wallace. Professor Westwood also exhibited drawings of several varieties of Butterflies (*Papilio Cardamines*, *Polyommatus Adonis*, and *Siderone Isidore*), which exhibited portions of the markings of the wings of both sexes in a more or less decided manner, thus two females of the common orange-tip Butterfly exhibited more or less extensively the orange-coloured marks of the male on one of their fore wings. He also exhibited a drawing of a remarkable new genus of Gall Flies, captured in the Malayan Archipelago by Mr. Wallace.

Mr. Stanton exhibited a case of minute British *Lepidoptera*, each specimen carefully labelled with the date and locality of capture, and entered into various details as to the best modes of making entomological calendars.

A revised catalogue of the *Lucanide* was presented to the Society by Major Parry, containing not fewer than 357 species of that group, including several new species discovered since the date of his former catalogue, as well as the remarkable American genus, *Nixius*, of *Lucanide*, which had at first been arranged near *Ochodonta* among the *Lamellicorn* Beetles. Mr. Crotch exhibited five small species of Beetles new to the British lists, including a *Dyschirius*, three small water Beetles, and *Philonthus electus*.

The catalogue of British *Neuroptera*, prepared for the Society by Messrs. MacLachlan and Eaton, was also presented to the Society, and a memoir by Mr. Butler on the beautiful genus of Butterflies, *Charaxes*, was also read.

INDIAN AND AUSTRALIAN FLORAS.—*Nature* informs us that a new Flora of India, by Dr. Hooker and Dr. Thomson is in preparation, the first volume of which is expected in the course of the present season. This will supersede the old "Flora Indica"

by the same authors, the first volume of which was published in 1855. The fifth volume of Mr. Bentham's "Flora Australiensis" is also announced as nearly ready.

## HUNDREDFOLD PEAS.

ALTHOUGH Messrs. Carter & Co. have not directly announced Hundredfold as mine, others have by some means been led into that error, and my name has been somewhat unfairly mixed up with that variety, as the enclosed extracts from the catalogues of a Covent Garden firm, and from a letter to me, describing Hundredfold as Laxton's, will show; and the admission on behalf of Messrs. Carter & Co. in the *Gardener's Chronicle*, that the variety may be a mere selection from an attempted cross, justifies me in disclaiming it.

As Messrs. Carter & Co. deem it good taste and conducive to offers from other quarters to submit their clients' communications for publication, I have to say, in reply to "G's" allegation that Messrs. Carter & Co. declined the Peas because "they were not of sufficient merit to justify offering them to the public," that some of the varieties had been especially selected by them as distinct when in growth, that the offer of all was solicited by them, that they had previously endeavoured to purchase part at a much higher proportionate price, and that the members of the firm had made two journeys to Stamford purposely to secure the stocks! I therefore leave your readers to judge for themselves why the Peas were declined. With regard to the price, I have always found as a purchaser that a good article, and sometimes a bad one, commands a good price; and there are those of your readers who know that hundreds of varieties are yearly grown to select a few from, and when I add that I have elsewhere for several years grown acres of trial Peas, and have discarded most of the varieties as indistinct, I think neither the seedmen nor the public ought to complain of the price, indeed, I can safely say I am never likely to be remunerated for the mere outlay, except by the pleasure the experiments afford me. I have only just seen it announced in print that the sample of Hundredfold grown at the Horticultural Gardens "had all the appearance of being the green variety selected from Laxton's Prolific," and I hope to have the opportunity of proving whether such is the case.—THOMAS LAXTON.

Here this controversy must cease in our columns.—Eds.]

## PLANTS FLOWERING IN JANUARY.

Jan. 2. <i>Linum flavum</i> <i>Pyracantha</i> <i>Chionodoxa</i> Rose, Monthly China <i>Erinus alpinus</i> <i>Doronicum aureum</i> Statice latifolia <i>Arenaria hortensis</i> <i>Campanula trachelium</i> Iris White Daisy <i>Primula acaulis</i> <i>Campanula officinalis</i> <i>Primula nivalis</i> <i>Helleborus niger</i> <i>Veronica</i>	Jan. 3. <i>Viola lutea</i> <i>Asarum europaeum</i> <i>Androsace sarum</i> <i>Arabis alba</i> Rose, Double Queen <i>Chionodoxa</i> <i>Statice latifolia</i> " 11. Double Red Daisy " 12. <i>Veronica spicata</i> <i>Flex europaeus</i> <i>Rosa martinia</i> <i>Campanula aurea</i> <i>Androsace sarum</i> <i>Androsace sarum</i> <i>Androsace sarum</i> " 13. <i>Veronica spicata</i> " 14. <i>Veronica spicata</i> " 15. <i>Veronica spicata</i> " 16. <i>Veronica spicata</i> " 17. <i>Veronica spicata</i> " 18. <i>Veronica spicata</i> " 19. <i>Veronica spicata</i> " 20. <i>Veronica spicata</i> " 21. <i>Veronica spicata</i> " 22. <i>Veronica spicata</i> " 23. <i>Veronica spicata</i> " 24. <i>Veronica spicata</i> " 25. <i>Veronica spicata</i> " 26. <i>Veronica spicata</i> " 27. <i>Veronica spicata</i> " 28. <i>Veronica spicata</i> " 29. <i>Veronica spicata</i> " 30. <i>Veronica spicata</i> " 31. <i>Veronica spicata</i>
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—M. H., Achlam Hall, Middlesex—on Trees.

## HOTHOUSE BASKET PLANTS.

HAVING read with some interest the remarks of "F. P. L.," under the above heading, I send the following, thinking it may be useful to some of your readers. I consider the plants named are well adapted for baskets, and that they make very pretty objects.

*Panicum variegatum* may be pricked in between the wires or wood of the baskets, and the centre filled with *Iresine*, *Coleracea*, or any of the dark-coloured fine-foliated plants. *Toronia asiatica*, although old, makes a splendid basket plant. Most of the *Achimenes* are well adapted for baskets, and the annual *Thunbergias* are excellent showy plants when in bloom, if kept free from red spider.

Of Ferns, I have found the following very effective and useful—*Adiantum assimile*, *A. cuneatum*, *A. capillus-Veneris*, *A. pubescens*, *A. formosum*, *A. setulosum*, and *A. Cunninghamii*. *Adiantum assimile*, *capillus-Veneris*, and *Cunninghamii*, will do without anything else to fill the sides of the baskets, as the fronds soon find their way out and cover them. The others are not quite so free, but I have found *Selaginella denticulata* pricked in the sides of the baskets very useful; and *Isoetes gracilis*, if kept well watered, grows very freely in heat, and is very useful for the sides of the baskets, looking like a ball of

green grass, if kept clipped now and then. *Pteris longifolia* has a noble appearance with *Pteris serrulata* to cover the sides, or *Doodia caudata*. *Asplenium viviparum*, A. Bellangeri, A. flabellatum, and *Asplenium flaccidum*, are all very ornamental in baskets.

For either the hothouse or conservatory I have found very useful *Saxifraga sarmentosa*, or the Mother of Thousands—the name it is better known by. If the sides of the baskets are filled in with it, as well as the top, it forms a regular ball of flower in the spring—long strings of Orchid-like bloom. I have not been able to make the variegated form grow freely enough to recommend it.

*Sedum Sieboldii*, with the sides of the basket covered with the common Stonecrop, looks very showy when in bloom. *Cactus flabelliformis*, or Creeping Cereus—"Cat Tails," as the cottagers call it, makes a nice basket plant. I have seen some fine plants of it in some cottagers' windows.

A variety of the *Campanula*, a drooping kind of which I have never been able to obtain the name—I have seen two kinds of it, a white and a blue one—forms a fine basket or hanging plant, and is a great favourite with cottagers. The Ivy-leaved *Polygonum*, both the variegated and green-leaved kinds, are very useful for baskets. Lastly, an old favourite of mine, *Nierembergia gracilis*, although not often met with, deserves to be better known.

I have found *Sempervivum tectorum*, or common House-leek, and *S. californicum*, very useful to fill the sides of the baskets, as well as many kinds of English mosses, but great care is required in watering for the moss to look fresh any length of time.

As it may not be out of place here to state something as to the potting, or rather the filling of the basket, I send the following. I find for the plants in a basket to last any great length of time looking fresh and healthy, great care is required as to soil, &c. I have used the following compost, and found it answer very well—good turfy loam and fibrous peat, with charred bones or charcoal, both large pieces and dust, to mix with the soil; decayed moss; and a little sand and leaf mould. —A LANCAIRE SUBSCRIBER.

### NEW HEATED FRAME.

I have induced Mr. Foster, who made my frames, to give me a section of one of them. It is drawn to the scale of a



quarter of an inch to the foot. It will be seen that the ridge is moveable, so that the frame can be ventilated in an instant without opening the lights. The machinery for lifting the ridges is very simple, and though mine are each 100 feet long, they are lifted with great ease; still, though so simple, I cannot show it on paper. The lights are hung on two iron pins which drop into hooks and act as hinges; so they can be lifted off for any purpose, as painting, &c.

The plants are plunged in cocoa-nut-fibre refuse, and a 4-inch pipe, furnished with a valve, goes quite round each frame, and is connected with a hothouse. The sides of the frame are made of brick, level with the ground, not sunk, 100 feet long. My ridges move all at once; of course they might be cut in two and moved from each end. Of course, pipes might be put in for bottom heat if required.

I hope this will be taken as an answer, to the best of my ability, to those letters you and I have received on the subject. —J. R. PEARSON, Chilwell.

### NOTES AND GLEANINGS.

Last week we stated, that at a meeting of the supporters of the GLADIOLUS SHOW, in connection with the Royal Horticultural Society, August 17th had been fixed as the date of the Show, stated also that the list of subscriptions was very en-

couraging, and promised to give particulars as to the classes in to-day's number. With regard to the amount already subscribed (and we hope more subscriptions will be forthcoming), we are glad to find that in addition to the £23 15s. offered by the Society, a sum of more than £10 has, through the exertions of the Rev. Joshua Dix, been subscribed for extra prizes—viz., MM. Vilmorin, Andrieux & Cie., £5 5s.; M. Sonchet, £6; M. Eugene Verdier & Cie., £1 1s.; M. Charles Verdier, £2 2s.; Messrs. Paul & Son, £2 2s.; Messrs. Kewley & Son, £2 2s.; Mr. Stukeley, £1 1s.; Mr. Marshall, £1 1s.; Messrs. Bunyard, £2; Messrs. Downie, Laird & Laing, £2 2s.; Messrs. Standish and Co., £1 1s.; Messrs. Barr & Sglen, £2 2s.; Messrs. Cutbush & Son, £1 1s.; Mr. W. Whitburn, £1 1s.; Mr. Laxton, 10s. 6d.; Lieut.-Col. Scott, £1 1s.; Mr. W. Paul, £1 1s.; Mr. Tillery, £1 1s.; Rev. H. Dombain, £1 1s.; Messrs. Veitch and Sons, £5 5s. (specially reserved for prizes to foreign growers); Messrs. E. G. Henderson & Son, £1 1s.; and John Clutton, Esq. The schedule as re-arranged stands as follows:—*For Foreign Growers*.—Class 1. Thirty-six Gladioli, cut spikes, distinct—£10, 46s. 4d. *For Nurseriesmen*.—Class 2. Thirty-six Gladioli, cut spikes, distinct (prizes offered by His Grace the Duke of Buccleuch, and G. F. Wilson, Esq., F.R.S.)—£7, 45s. 4d. Class 3. Eighteen Gladioli, cut spikes, distinct (for exhibitors not showing in Class 2)—£5, 43s. 4d. *For Amateurs*.—Class 4. Twelve Gladioli, cut spikes, distinct—£5, 43s. 4d. Class 4a. Nine Gladioli, cut spikes, distinct—£3, 42s. 4d. Class 4b. Six Gladioli, cut spikes, distinct (for exhibitors not showing in Classes 4 and 4a)—£2, 41 10s. 4d. Class 4c. Four Gladioli, cut spikes, distinct, being new varieties cut in the autumns of 1868 and 1869—£2, 41s. The Classes numbered 5 to 11, in the original schedule for the meeting in question have not been altered.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

A proper rotation of crops having been secured, watch the fluctuations of the weather, and endeavour to perform all planting and sowing whilst the ground is in a mellow state. Continue to plant out *Cauliflowers* in rich and sheltered spots, and plant out winter *Lettuces* in a similar place. Warm slopes artificially prepared, high manuring, and where at hand old lights, or mats on hoops, are the chief essentials. Sow a sprinkling of early *Cabbages*, Dutch *Turnips*, *Onions* for drawing young, *Parley*, *Normandy Cress*, and a little early *Celery* in boxes on a slight leat. The early *Peas* should have some attention; those sown in November would appear above ground at Christmas, and if covered with sawdust to protect them from the severity of the frost may, when the weather is cloudy and inclined to rain, have the sawdust raked off them in order to insure them gradually to sunshine. Such work should never be done in a sunny morning. It will be well to strew cinder ashes or very sharp sand among the stems, as the slugs will be unusually voracious this spring from long confinement. It is a very good practice in planting out vegetables that are at all tender at an uncertain season, to throw up the ground in good strong ridges running east and west, planting on the south side of the ridge. The plants are thus sheltered from the north wind and fully exposed to the sun. Take advantage of dry days to stir the surface of the ground among growing crops, and to prevent weeds from making their appearance.

#### FRUIT GARDEN.

Bring up arrears forthwith; make sure of thorough drainage. Finish maling, provide against all insects, and protect as far as possible all opening blossoms.

#### FLOWER GARDEN.

Attend well to thorough cleanliness. Hoe through or otherwise dress all margins or beds where *Cranes*, *Anemones*, *Snowdrops*, *Primroses*, and other spring flowers are peeping up. Plant out *Hollyhocks*. This noble flower is well deserving of general cultivation. Its bold and pointed form stands out in fine relief in masses of flat-headed shrubs. It occasionally happens, from disease or other causes, that a Tulip does not make its appearance above ground with the rest. A careful examination should immediately take place, removing the soil till you come to the tops of the bulbs, when it will be found that the outer sheath or leaf is partly decayed. In this case, after removing the diseased parts, do not return the soil, but allow the bulbs free exposure to the air, covering them only from rain or frost with a hand-glass. When canker occurs and the plants are fairly above ground, with a sharp penknife cut away the parts affected. Shelter the beds from cutting winds, which are

more detrimental than slight frosts. The weather has been particularly unfavourable for planting *Kannucculuses*, which should now be proceeded with as speedily as possible. As seedling *Polyanthuses* come into bloom, remove all that are inferior in shape, lacing, or colour. *Auriculas*, if not previously top-dressed, should be attended to immediately. Well-grown annuals contribute much to the gaiety of the garden, and although not quite so well adapted for masses as some half-hardy plants, yet they are very desirable for borders and mixed beds. They are frequently treated with too much kindness, being sown in soil of too rich a character, and run too much to leaf. I would advise all those who can spare the means, to devote to their especial cultivation at this period two little frames, the one with bottom heat, the other without it. That with bottom heat would be better with a plunging material possessing a permanent heat of 70°, the pots placed very close to the clear glass roof, and matted-up at night. The other frame, without bottom heat, should be raised about a foot above the ground level, where water cannot possibly stand, and should be filled to within a foot of the glass with cinder ashes. They should be both well watered with boiling water previous to placing the pots, in order to destroy insects. It is advisable to raise both the tender and hardy kinds in the frame with heat, managing the sowings in a successive way, according to the period at which they are required to bloom. The hardy kinds, however, would have to be removed to the cold frame as soon as an inch high; they would then harden off in a fortnight, and be ready for turning out into the borders. The tender annuals, if becoming drawn up in the warm frame, might be removed to warm and light shelves in the greenhouse or other structures. The soil for the hardy kinds should be chiefly plain loam; this will be found to produce a sturdier plant than rich vegetable matter, and much blossom in proportion to the amount of foliage.

#### GREENHOUSE AND CONSERVATORY.

On the removal of a portion of the *Camellias* as recommended, some room will be made for ray-flowering plants from the forcing-pit or houses at work. In large establishments New Holland plants, *Eriens*, &c., will of course be culled from their proper situations, or borrowed, as it were, to keep up a display. For such places, however, little advice is needed. We would rather address ourselves to those who are pinched or limited for room. Where a dressy little greenhouse is kept with few other glass structures to assist, much of what is termed flower-forcing has to be carried on in the greenhouse. The flower-forcing pit, if there be one, will of course be regularly examined, and anything coming into blossom may be removed to make way for successions. I would advise, after the late hard frost, a very free circulation of air, accompanied by as much atmospheric moisture as can be managed without drip. Many plants from long confinement, and especially when people are afraid of giving air, will be "drawn;" and having received so much artificial heat in proportion to the average amount of atmospheric moisture, the leaves of many will assume an unhealthy character. Be sure to sow a little *Cineraria* and Chinese Primrose seed as soon as you can; this, with another good sowing in April, will furnish a supply through the next autumn and winter. Attend to ornamental trellis plants; they should always be kept in a highly dressed condition, and to accomplish this frequent attention is necessary. Forcing bulbs, as *Hyacinths*, *Narcissuses*, &c., should, after blooming, have their blooms tied up, and should be transferred to a cold frame, and when the severe weather has passed away they should be turned out of their pots to feed in prepared beds. *Clerodendrons* may now be discarded, potted in smaller pots in fibrous soil, and started in a mild bottom heat.

#### STOVE.

Continue repotting *Orchids* as needed. *Stanhopes*, *Acroparas*, *Dendrobiums*, &c., suspended in baskets or on blocks will now either require syringing occasionally or watering by some means. Many of these will have received little water since the end of October, and will have become excessively dry. Blocks may occasionally be soaked for a few minutes overhead in tepid water, also baskets if very dry. If syringing be resorted to, choose a bright sunny day for the purpose, and syringe them well early in the morning. On such occasions keep a brisk fire, and give air freely until the afternoon, for fear of moisture lodging in the unfolding bud, which in some cases would prove fatal. Some of the winter-flowering stove plants, as *Geissomeria*, *Eranthemum*, *Plumbago*, *Justicia*, &c., now exhausted, should be cut back a little and left to break awhile, when they may be disrooted and placed in smaller pots. These will make

large and early specimens for next autumn, whilst cuttings from these, struck immediately they break, will furnish encension plants of a smaller size for decorating front shelves. The temperature should now be allowed to rise freely on bright days in the early part of the afternoon, remembering that a rise by means of solar heat alone can do no harm for a few hours at this period, provided it does not exceed 80°.

#### COLD FITS AND FRAMES.

A little water will now be required here. Give plenty of air all night in safe weather, and propagate stock for bedding out. —W. KEANE.

### DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

In the open ground the work has been much the same as in the previous week, trenching, moving, and turning where the ground would lie long enough to become thoroughly mellowed and warmed before being used. The ground which we want for use as soon as the frost shall have gone, we let alone, or merely shallow-turned the ridges. It is bad policy ever to turn down snow or frozen soil to any depth, as it tends to keep the soil cold so long. We referred to Mushrooms last week, and after spawning, and finding all going on well, we spawned a piece of bed, and beat it down, but as yet have used no covering over the soil, as the house is warm enough from this bed and another bed in the preparatory state.

A lot of Potatoes in pots in the Mushroom house, that would have been too forward there, and which the weather would not permit us to remove to any other place, we have set in the meantime between the rows in the most forward beds, that they may be insured to light before planting them out under protection. The severity of the weather has thrown back much work of this kind, as unfortunately we had not a good stock of tree leaves in hand, as the raking was generally deferred until the last shooting parties, and in such weather even stable manure, when consisting chiefly of litter, refused to heat and decompose so fast as we wished, otherwise we would have had beds ready for Cucumbers, &c., before now. These beds are all employed in giving small bedding *Pelargoniums* and some other plants a little heat, before we obtain the greater heat for other purposes. We have just nipped out the points of the most forward Potatoes, and raised the frames about 4 inches all round, to prevent the tops touching the glass.

We sowed a lot of Tom Thumb Peas in 12-inch and 8-inch pots, from six to eight Peas in a pot, and placed them under shelves by the sides of paths in the Peach house, and other places, meaning to move them to the orchard house when the Peas are 2 or 3 inches high. Peas sown in front of orchard house are just coming through strongly, seemingly untouched by mice, but the seed was coated with red lead. We have sown Peas in small pots, and then transplanted, but when intended to produce in pots, we think they do best when sown in the rather large pots at once. Provided drainage is secured, good loamy soil with a little leaf mould and a little charcoal suits well, the soil being made moderately firm, and a little space left at the top for earthing-up. We have not succeeded so well when we used a richer compost, with more dung in the soil, or even with a layer of sweet rotten bottom dug over the drainage. We had stronger growth, it is true, but not so many pods. We have also sown a lot of early Peas and Beans in semicircular drain tiles, and in pieces of old zinc and tin spouting, which answers well for this purpose. We could not have obtained turf if we had wished. In fact, we have lots of turf taken up to be laid down, which we cannot touch until after a perfect thaw. On the whole, though we often sow Peas and Beans on turf, and transplant in pieces, yet had we plenty of them, we would prefer semicircular tiles or old spouting. In many cases we have thought that the young Pea plants are held too tightly by the firm turf, when thus sown upon it. Old zinc spouting is especially useful for such purposes, when too far gone to be fit for anything else.

We have often wondered that no one has thought of manufacturing zinc pots for plants, as we never met with a plant whose roots did not thrive well in a zinc vessel. We have plenty of other utensils for common use, as pails, watering-pots, stands, &c., made of zinc and galvanised iron, but nothing, so far as we are aware, made of zinc, to supersede the earthenware pot. We should be doubtful of galvanised iron answering so well as zinc. Here is a hint to those who do not mind throwing money away upon a patent. In using tiles, or pieces of old spouting for this purpose, we simply daub up the

ends with moss, or a handful of half rotten dung, strew a little rough riddings of soil on the bottom, and finer soil above, and sow; and when up and duly hardened-off, the Peas turn out into well-prepared pulverised soil, and scarcely suffer from the change. We have put them in the meantime into the earth pit, where the old hotbed materials had been turned over, as lately detailed, leaving an open space of dry ashes all round them, the ashes, again, being sprinkled with a good broad cord of tar to keep mice and rats at bay. As a farther security, we have had a ferret to run round our borders, pits, and frames frequently, and though as yet it has found no intruder, we think the scent of the ferret makes all vermin very cautious.

**Repairing Old Sashes.**—The subject of the earth pits reminds us of the old sashes, which were condemned to be broken up more than twenty years ago, and which have done much good service since then, from merely being laid across earth pits, or over beds or earth pits of early crops, without rafters or anything else. A lot had become so bad from thoroughly-decayed putty, and from moss growing on the under side, owing to their being always damp, that washing them was quite out of the question, as the glass would only have fallen out, and most likely been broken. In some of these stormy days the glass was all taken out, well washed in warm water, and placed in boxes to dry, the sashes being well washed and dried, roughly mended or stayed where necessary, painted once over, and when dry glazed again, using the old glass and what more was necessary. When the putty was becoming dry the upper side had a slight coating of paint. These will now stand, and be very serviceable for a number of years. Such jobs can be well done in a rough way by garden labourers, and this and thoroughly washing and cleaning inside walls give good employment when little could be done with propriety out of doors.

**Cucumbers.**—As we have referred to these before, it will be seen our materials are not quite ready for setting some frames to work, and the pit in which we intend to plant is now crammed with cuttings. The young Cucumber plants are, therefore, in one end of that pit, having been placed in 6-inch pots, and stand close together; they may remain there until they are strong plants, and thus, without taking up much room now, they will be in a position for making good progress when they obtain that room. We shall very likely grow some in pots. Last year we had some of the first fruit from small pots, the plants being used for this temporary purpose. We have had something like a score of inquiries if we can yet assign cause or cure for the Cucumber disease. We sorrowfully answer, no. We had our own troubles with it. We have been free from it of late, but we can assign no reason for its presence or its absence. After trying many experiments with soil, and with seeds from all quarters, we had to keep to the palliative remedy of frequent sowings. Our Vegetable Marrows were affected for two summers. Our Melons were not at all touched, though close to the Cucumbers. Cucumbers from seed sown in the open air, and under hand-lights, became just the same as those in dung frames, and hot-water pits. We hope we shall not be visited again in a similar manner. We have met with several such instances as this:—Go into one garden, and you will find every plant, except those very young and just beginning to bear, diseased; go into another garden a few hundred yards distant, and you will not find a trace of the disease. You may visit the same gardens in a couple of years, and find the Cucumbers in the second garden all diseased, and those in the first garden all healthy, although under the same men as before, both of whom will tell you they are quite at a loss as to the cause or the cure.

#### FRUIT GARDEN.

Some bush Pear and Plum trees, beautifully budded, have already had nine-tenths of these picked out. As we prune, we must follow with whitewash. Unless a garden be netted all over, netting is of but little use; the birds will get in. That the birds do good at some seasons, we cheerfully admit, but when buds go, there can be no blossom and no fruit. We can go into gardens and scarcely see a bud touched.

**Orchard Houses.**—Took the opportunity of the roofs being covered with snow, to give the houses a good smoking with burning bruised laurel leaves, and young shoots, keeping the smoke cool. This costs little, and few insects, if there were any, would survive it. It is best done when the house is dry, and the woodwork dry, as if the woodwork is wet the colour would be darkened, we presume with something like prussiate (hydrocyanide) of lead. The smoking, like the washing recently referred to, is designed as a preventive. Most of the trees have now been washed, painted, tied, &c., and are long the borders

will be cleaned and fresh surfaced. This has been bad weather for Peaches in bloom, and coming into bloom. Vines are not forcing early, but as the roots were out of doors the borders had to be looked to. The thin covering of leaves had a mild heat where protected, as where Strawberries, &c., were set on the borders. We rarely have a small heap of decomposing material, without making the heat help for some purpose.

#### ORNAMENTAL DEPARTMENT.

We could do little out of doors, though there is much to do, and much work, also, in doors in cleaning, potting, regulating, and in cutting-making as we could find room. We watered with care, as previously stated. Roses and shrubs gently forcing in a pit would have liked a little more heat, but we could not move them owing to the weather. Numbers of Hyacinths and other bulbs we had to move from a frame to a cool house, as with the bottom heat they were coming too forward.

*Evergreen climber which deer will not touch.* A gentleman wishes to hide, or rather take the glare off a new brick wall at some 500 yards distant, without planting it. We recommended Ivy, especially the white-variegated variety, as it would appear at a distance of a greyish, almost invisible tint. We could hardly have shown greater ignorance of the likings of the deer. We knew there was scarcely a hardwood tree the bark and twigs of which they would not devour. They would soon polish the bark from some kinds of poles. They are especially fond of Ash and Holly. We never knew them meddle with the bark of resinous or Pine trees when of an age suitable for posts and rails. Even in this severe weather, when they have gnawed the twigs of young Pines, they have not touched Wellingtonias or Red Cedars, though they have stumped in Aucubas and Laurustinus. Of all things, however, the Ivy seems to be their especial favourite. On the walls of a dwelling house they have not left a single leaf or twig as high as they could reach. We were, therefore, never more in error than in recommending Ivy for covering such a wall accessible to deer. What would be the best plant that they would not touch? We think we are right as to the colour. A soft grey or drab is the least conspicuous from a distance. We once advised covering a wall, objectionable from its glaring redness, with a thick wash of clay, lime, and a little soot, so as to make a grey, and we were told that in three or four years the wall was nearly covered with lichens and mosses, that obtained a fast holding on the thick coating of the colouring. Any hints on this subject would be interesting to more than ourselves. It would be easy to make the colouring with cement so as to be waterproof, but then we doubt if such vegetation would nestle on it so well.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending February 22nd.

DATE.	BAROMETRICAL.		THERMOMETRIC.				Wind.	Rain.
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. ... 16	29.58	29.62	39	31	36	35	N.E.	.00
Thurs. ... 17	31.004	29.303	31	27	36	35	E.	.00
Fri. ... 18	29.898	29.812	34	29	36	35	E.	.00
Sat. ... 19	29.949	29.873	33	29	36	35	N.E.	.00
Sun. ... 20	29.642	29.758	44	32	37	36	N.E.	.00
Mon. ... 21	29.650	29.741	43	31	37	35	N.W.	.00
Tues. ... 22	29.782	29.748	38	29	37	36	N.W.	.00
Mean...	29.932	29.837	38.7	31.7	35.4	35.14	..	0.00

16.—Cold wind; overcast but fine; densely overcast; snow.

17.—Frosty fog; densely overcast; cold and overcast.

18.—Densely overcast; heavy; densely overcast.

19.—Densely overcast; cloudy; overcast; cold wind.

20.—Overcast but fine; fine, cloudy; densely overcast.

21.—Densely overcast; cloudy but fine; snow.

22.—Clear and frosty; very fine; densely overcast.

#### TRADE CATALOGUES RECEIVED.

S. Dixon & Co., 48, Moorgate Street, E.C.—*Select List of Vegetables and Flower Seeds, &c.*

J. Jefferies & Sons, Cirencester and Oxford.—*Catalogues of Vegetable and Flower Seeds.*

W. Rolleston & Sons, Toxteth, London.—*Seed Catalogue, and List of Seeds of 850 Plants, &c., and Agates.*

#### TO CORRESPONDENTS.

Books (Twenty).—"The Garden Manual" contains what you require. You can have it post free from our office if you enclose twenty postage

stamps with your address. *(P. D. B.)*—Both the books you mention are published by Messrs. Longman & Co. Any country bookseller could obtain them for you.

**TESTIMONIALS.** *(Mr. M. P.)*—We do not wish under the circumstances to publish anything on the subject.

**GRAPE.** *(J. D.)*—The Alonzo you should grow is not the Kemper, but that which is known as Pinkish, or Alonzo. The Kemper is Alonzo in the same as the Red, or other. Send us a bundle of the Grape you refer to when ripe, and we will endeavor to name it for you.

**SPERM FROM CRYSTAL PALACE (GET PELARGONIUM.** *(H. S.)*—There is no novelty in the foliage of your plant. It is the worst species of the year to judge of its merits, yet I say that there are many varieties in cultivation superior.

**GERANIUM AND PELARGONIUM.** *(M. S.)*—All the "Scarlet Geraniums" of the olden time; all the Zonal and Tricolor, and every variety of what were formerly called Germanias, are now called Pelargoniums, and correctly, such plants as the "Herb Robert" of our hedges are Geraniums. We think Mrs. Pollock is to be known as a Tricolor, and not as a Zonal.

**GAS LIME.** *(G. S.)*—Gas lime dug in the soil in November will have no injurious effect on the Potatoes to be planted next March.

**NATIONAL FLOWERS.** *(H. S.)*—We know of no work on the subject. The white Rose was adopted by the Tories, and the red Rose by the Liberals in the 16th century. Her present Majesty bears on the Royal scutcheon Roses of both colors.

*(W. L.)*—England possibly rear  
Her tended E. S. S. bounty so dear.

The Shamrock, it is said, was adopted as the national plant of Ireland because St. Patrick used it as an illustration of the Trinity. The Thistle is said to have been taken as Scotland's hereditary plant because a naked-footed Dane slunked when he tried to cut one, and this saved the Scotch from being surprised.

**PLAN OF GARDEN.** *(E. S.)*—We never furnish plans of planting we only criticize plans proposed. If you require a guide, the volume entitled "Flower Garden Plans" will suit you; there are in it about seventy plans, including gardens of all sizes, and the arrangement of the beds, culture of plants, &c., price 7s. You can have it from our office.

**PEACHES AND OTHER TREES AGAINST LOW WALLS.** *(J. D.)*—For walls only 8 feet in height, Peaches should be trained in the usual way, and planted, say 18 feet apart. Procure from the nurseries dwarf-trained trees for walls, and continue that method of training which the nurseries have adopted. English Geraniums and other shrubs are suitable sorts for out-door culture. Never severely root-prune any young tree. Fruit trees planted last autumn and this winter should be, as a rule, carefully forked out of the ground about the 20th of October, 1870, and the four runners of each tree cut down to the level of the ground. Any trees this year, you will gain nothing by doing; wait until next autumn. All the best plants have been sold. Only one nurseryman sells Pear trees on Quince stock, trained for walls upright like a free growing standard, and his stock is exactly what the wall garden man has trees on. Last stock trained after this manner, he should state the fact in the advertising columns. There has been a great demand for these trees this year. I am not surprised at it, as it is decidedly the best method of training the Pear. You will secure all the advantages and destruction of sorts in "our Journal" in a very short time. The May Duke Cherry, on the Matchless stock, trained upright, will succeed. Against a north-east wall; also will Victoria Pinn, and doubtless also Prince Fanelette, both first-rate hearers and excellent fifteen plants. Procure dwarf-trained trees for all the branches upright. Trees so trained will occupy a length of from 5 to 10 feet on a wall. This is not at all suitable for Apples—Lord Suffield, Tower of Glamis, and perhaps Dundee, &c. should be trained upright. The first and last of these three Apples are the best in their season in cultivation. Lord Suffield does in with the Keswick Golden, and cuts out all the Cypresses. There are several malicious beliefs in circulation, and in hearing of Tower of Glamis, it is said that it has a romantic flavour which Lord Suffield possesses, and which I think so good. C. M."

**PEACH TREE FROM A LIVER.** *(H. S.)*—The Peach on its own roots does not succeed in our climate, except when grown in warm, well-drained soils, and protected situations. We have seen it do very well under glass, and we have no doubt that your young tree will do so, as a pot plant, or otherwise, in a heated or large orchard-house. It will produce Peaches without grafting; but instead of grafting it seems ought to be taken from it and worked on the Pear. Grafting, however, is not a good mode of propagation for stone fruit trees; budding is better. For out-door planting we think it would be necessary to have it worked on a Plum stock.

**PEAR TREE INFESTED WITH BROWN SCALE.** *(Clarke.)*—We advise you to dress the tree now with train oil, applying it with a brush to every part except the galls of water, which will not injure the buds, and apply it also with a brush to every part, the tree being enailed for the purpose. To destroy the other insect attack on the leaves, strike the tree with the last-named compound, and the rate of 2 ozs. to the gallon of water. It would not hurt the tree, and it would be a good idea to cut the stem of the tree, and deep enough to go below the roots, cutting away all roots there thicker than a quill, fill in the trench with turfy loam, and make the soil firm. If there are few roots where the trunk is taken out, work over the soil, towards the stem of the tree, and cut through all the roots, cutting directly downwards, but preserving as much fibre as you can. Replace the soil taken out with fresh turfy loam, and firm it about the roots; then give your good top-dressing of manure, and water in dry weather. It will take your tree will form fruit buds freely, and produce good fruit in 1871.

**POTTING AND PRUNING LUPATHEA ROSEA.** *(J. A.)*—The plant should be potted at once, in order that it may have the benefit of the fresh soil whilst making new growth, and any pruning required should be done at the same time, thinning out the shoots where too thick, cutting out any old bare branches, and cutting out the roots where they are too numerous. It is not practicable to prune this plant on the spur system like the Vines.

**AVOCET.** *(H. S.)*—We cannot furnish you with particulars. It will be necessary by one early sale to give an order on one.

**OUT-DOOR FERNERY.** *(A Stupid Old Pommy.)*—Your rockwork being open to the north and west will not be suitable for some kinds of hardy Ferns, and we therefore advise you to plant kinds which are likely to grow freely. The following we think suitable: *Polypodium vulgare*, *P. angustum*, *Adiantum album*, *Asplenium Trichomanes*, *Athyrium Filix-femina*, *A. Filix-femina*, *Corymbiferum*, *Blechnum Spicatum*, *Cystopteris Fragilis*, *Laetia Filix-mas*, and its varieties *cristata*, *Jervisi*, *L. dilatata*, *arg. scolopendria*, *variegata*, and its varieties *trifolium multilobum*, *ramosum*, and *multilobum majus*. *Osmunda regalis* and the Maiden-hair Fern we do not think would succeed. It will be necessary, as the situation is dry, to water the plants for some time in hot dry weather, and to sprinkle them with water in the evenings of hot days.

**POTTING TWO OLD PELARGONIUMS.** *(Dorothy.)*—You cannot do better than follow the directions given by "D. D. D." They are applicable to old as well as young plants. It will be necessary to shift the plants into larger pots when those in which they were first potted are full of roots. The theory will answer well until May, and then the Peach House would be the most suitable structure to grow them in.

**IVY GROWING FROM TREES.** *(Jaggy Whips.)*—It checks the growth of all trees round which it twines; but when timber is not the object there cannot be any doubt of its contributing to the beauty of trees, and especially all oaks. Where, however, the object is timber or other fine healthy trees, Ivy could not be suffered to grow on them. It is not a parasite, as any one may soon prove by cutting off the plant at the root. It is a grass feeder, and its roots so dry and exhaust the soil that the tree is obliged to find support is deprived of a considerable amount of moisture and nutriment.

**CABAGE ROSE.** *(H. S.)*—The petals are crowded together like the leaves of a Cabbage, and this probably may have originated the name. By botanists it is called *Rosa centifolia*, and for the purpose of P. which applied to the petals or flower leaves, and not to the leaves proper.

**HYACINTHS.** *(B. D. D.)*—The water in the glasses is perhaps placed in contact with the base of the bulbs, but it ought not to reach so far as to come half to three-quarters of an inch. Dust the base of the bulbs with powdered charcoal, and place a piece of cloth in the glass, or a bit to crush the bulbs, and place the glass with a soft brush before applying the powdered charcoal, and place the glasses in a dark closet until the bulbs are well rooted.

**MANAGEMENT OF OLD COLD PLANTS.** *(A Poor Aunt.)*—Old plants cut down in autumn and kept dry during winter, and if again placed in heat, providing the shoots or roots are not decayed, will almost certainly be kept much moisture in the atmosphere, nor to water much at the root until the plants have broken and are growing freely. There is a great likelihood of the plants damping-off when placed in heat. They ought not to have been raised in autumn.

**COCCIDIIUM LARVAE CRAWLING.** *(H. S.)*—The curling is probably due to the decay of the leaves of temperature, and cold air blowing directly on the plants, but the decay of the seed leaves we should attribute to rank steam, or to too much moisture and not enough of air.

**ARABIDOPSIS IMBRICATA TURNING BROWN.** *(J. D.)*—It is very common for this plant, when of the size of a bush, to die off. It has a greater tendency to do so in dry gravelly soils than in those which are deep but free from water. We do not know in what way you could improve its growth, except by giving a soil top-dressing of manure, and planting it in a soil with a few inches of peat soil, and a layer of peat soil next to it. We have not seen a good specimen growing on grass, and nowhere with the branches entire to the ground, except where the ground was kept clear, and the base of the trees sheltered by a hedge, or a wall, or a short distance. There is no work published treating of what you require.

**FICUS ELASTICA STEM DECAYING.** *(A Young Gardener.)*—We fear the decay of the stem or shoot at the part where the foot-stall of the tent was removed will be attended by any application, but will go on, and the part above the wound will die. All you can do is to cut the shoot down to the joint next below the wound; and to secure its healing, apply to the cut the patent "knotting" used by painters.

**GRASS SEEDS FOR PERMANENT PASTURE.** *(John Crombie.)*—For a rather "heavy soil, and partly wet and partly dry," we advise per imperial acre:—*Poa nemoralis*, 3 lbs.; *Poa trivialis*, 2 lbs.; *Phleum pratense*, 3 lbs.; *Dactylis glomerata*, 3 lbs.; *Cynodon cristatus*, 2 lbs.; *Aloupecurus pratensis*, 2 lbs.; *Anthoxanthum odoratum*, 1 lb.; *Festuca arvensis*, 3 lbs.; *Festuca ovina*, 2 lbs.; *Festuca holcus*, 2 lbs.; *Trifolium repens*, 3 lbs.; *Medicago lupulina*, 3 lbs.; *Anthriscum aviculare*, 4 lbs.; *Trifolium repens*, 3 lbs., and *Trifolium hybridum*, 1 lb.

**WIREWORKS IN A TAN BED.** *(C. R. D.)*—We advise you to clear out the tan, or if it cannot do that, turn it over, and sprinkle over it a layer of soil, and a layer of straw, or a layer of earth, and, indeed, inserting and then just below the tan, they will form excellent beds, by examining which daily for a time, and then every other day, you may take the destroyers in great numbers. Carrots are as good if not better than Potatoes. We imagine you have your only ordinary worms, which may be destroyed by watering with lime water.

**FORCING VINES NEWLY PLANTED.** *(H. S.)*—It will not do to force young Vines. Let them break naturally, assisting them with a gentle fire heat in cold periods. If they start but weakly you may cut them down, and then will make a much better crop than if they were left to grow, and then grow to the top of the house, and then cut them down and start them again, as the season will be too far advanced for any securing good growth and the proper ripening of the wood before autumn.

**CAMELLIA BUDS FALLING.** *(M. S.)*—The cause of Camellias casting their buds is a defective root system. It is very likely the buds yet remaining with brown spots will fall. We should advise potting the plant in a compost of fresh turf taken from a pasture where the turf has not been used, and a quantity of leaf-mould, and a quantity of peat, and potting with the rather poorer, keeping the finer portion for the top. In potting, take away most of the old soil. Drain the pot well, and water freely after the roots are working well in the fresh soil. Keep the plants







I will only add now that I wish your Swansea or Leicester correspondent would hand over to me, instead of to the gaillotine, those incalculables which cannot fly more than four hours at four months old, as my best never kept up more than two and half or three hours, generally only one and a half.—WELSH.

## PIGEONS AT THE WOLVERHAMPTON SHOW.

(From a *Cock-pigeon*.)

ALTOGETHER 163 pens in ten classes, with scarcely a bad pen amongst them. The arrange ments were good, and the jury large and clear. I was sorry to see that several excellent ones were disqualified for trimming. (Why were the names and the cause not published?)

**Trochilids.**—Mr. Fulton was first, with a fine pair of Almonds, perfect in feather, head, stop, and bill. Mr. Fielding was second, with a pair of Almonds, deficient in stop, and the less poor in colour. Mr. Graham was highly commended and commended for Black and Silver Bells respectively. Mr. Fielding was disqualified with a pair of Black Mottles.

**Caracaras.**—Mr. Fulton was again first, with a very good pair of Blacks; and Mr. White second, with moderate Duns, the same gentleman having a pair of Blacks, "left out in the cold," far superior to his second-price bird. A pair of Blacks, which was highly commended, ought to have been entered in the Dragon class. What a judge could see in there I know not. Mr. Siddons exhibited two pairs in this class which by some mistake were wrongly penned. A Black and Dun were put in each pen. Had they been penned aright, the Duns would most certainly have gained a prize. Several pairs of Blues were also exhibited. This was a good class.

**Fantoms.**—Only four entries. Mr. Fulton winning both prizes: the first with Blues, and the second with Blacks. The other pair were Whites.

**Fantails.**—Mr. Tomlinson first, and Mr. Yardley second. Both of the winning pens were Whites. Unquestionably the second-price pair were far superior, having the best tails and carriage.

**Antwerps.**—Mr. J. Bradley was first, with a nice pair of Duns, good in style, carriage, head, and colour; Mr. Remrose being second, with a pair of Red (C) Chequers, badly matched, and thin-billed, the cock being light-headed and over-thought, the hen dark-headed and filled. Both birds were flakey—that is, the red running into the white in the chequer. Such a pair of Red (C) Chequers as Bradley exhibited would not worth the name they bore. Mr. Yardley was highly commended for a pair of Duns, the hen being only the best of her sex in the class; exception must be taken to the bill-head of the cock. An Antwerp ought to be barrel-headed and throaty. Mr. Fox showed a pair that should have been disqualified, as the cock had a full cut out down his chest.

**Tringues.**—This was a good class, consisting of all the recognised classes. Mr. Graham was first, with a pair of Blues, good in colour and bill, but far too coarse in skull. The same gentleman was second with Yellows, in splendid condition. Mr. Yardley exhibited by far the best pair of Tringues in the class—good carriage, long, straight, and narrow-headed, though badly matched, the hen being white-rumped, and the cock blue.

**Jacobins.**—Miss Fasten was first, with a nice pair of Reds; colour, frill, hood, and condition good. They were large in the body, which gave them a very coarse appearance. Mr. Yardley was second, with a neat pair of Yellows.

**Trumpeters.**—Only four entries. Mr. Fulton was first, with a pair of Mottles; the hen very gay and white-dipped; also second with a pair of Blacks. Every bird in this class had the feathers drawn from the centre of the rose.

**Doves.**—Mr. Fielding was first, with a beautiful pair of Whites. Mr. Dove second, with a pair of Blues, having only colour to recommend them; Mr. Fielding and Mr. Fulton both showing far superior birds. This was a splendid class.

The "Any other variety" class was the largest one in the show, numbering twenty-three pens, including Barbies, Swallows, Lahores, German Toys, Turbids, and Nuns. Mr. Yardley was first, with good Black Barbies; Mr. Creswell second, with a remarkable pair of good-coloured Red Turbids, perfect in cap and frill, but far too large in body. Mr. Fielding was third, with a pair of Black Barbies. Mr. Wylie was disqualified for Yellow Swallows plucked on the head.

The entries of Pigeons have not increased in number as I expected they would have done, after three classes had been added to the schedule. Why is this? Is it because the Committee have raised the entry fee 1s. per pen, and not increased the prize money? Are not Pigeons self-supporting at shows?

## BREEDING PAROQUETS.

SEEING in your issue of the 10th inst. some questions respecting the breeding of Budgerigars, or Australian Grass Paroquets, I beg to inform Mr. Baker that numbers of these birds are bred here every year. They invariably lay about Christmas, and sometimes have three or four nests in the season. They have been known to hatch in an ordinary breeding cage, although the majority of the cases which I have known have

occurred in large aviary cages. The markings in the young ones are much less distinct than in their parents.—H. THOS. KELSEY.

## THE CRYSTAL PALACE CANARY SHOW.

I HAVE BEEN to the Palace Show once more. I don't wish it to be generally known, for somehow or other you know people will make unpleasant remarks; but I was there.

The way it came to pass was something in this wise—I didn't intend to go; indeed, I thought I had fully made up my mind not to go. The night mail, the only available train for me, leaves here at 6.50, and after I had settled myself in my easy chair, most desolately wishing the pointers of my time-piece would travel faster and put it out of my power to change my mind. How slowly they travelled, and with what a moaning, aggravating tick the pendulum chopped off the seconds one by one! I had lighted my pipe, and, watching the rising circles of smoke, my thoughts strayed away to the fairland at Sydenham, and being only a frail mortal, I wished I was there. I really did. But Mr. Young wasn't going, and Mr. Shiel wasn't going, and nobody was going, and, of course, I wasn't going. I told my wife so, but she laughed, actually laughed at me! And in such a stinging way too! The clock ticked on quietly on with her work, while the timepieces stared at me and ticked out a dispirited chuckle! But I smoked on; neither my wife nor the clock knew me as well as I knew myself. I was not going, not I! I blew denser clouds of smoke, fragrant with incense of Latakia, obscuring the face of the hateful clockmaker, which seemed to be ticking a duet with my wife's thimble. "Diana," I said, "you would, perhaps, hardly believe it, but it appears now to pay my expenses to London, I don't think I could go." "No," she replied, "I hardly *should* believe it, and then she gave a quiet cough and continued the duet with the clock. I don't think it might have been the smoke which caused the cough. Perhaps it was.

A ring at the front-door bell! It was too late for the postman. Who could it be? What did it matter to me? I felt calm, but something told me a crisis was approaching. The thimble took a few bars rest while the clock ticked a solo.

"Will you walk into my parlour," said the spider to the fly.

"Papa! Mr. Young wants to see you, and—and—there's a cab at the door." Another cough! I felt certain that the smoke had nothing to do with that one. Glancing at the clock I saw it had ticked away to such good purpose that it was now too late to think of leaving by 6.50, even if I had been disposed, which I wasn't, and I saluted my friend with all the self-satisfaction of the man who does a wise thing when he has no alternative.

And so we sat on either side of the fire. And wasn't it natural that should talk about what was uppermost in our minds? Of course it was. And didn't I, well knowing it was nearly seven o'clock, make great boast of my strength of mind in resisting the allurements of Sydenham? Certainly I did. And didn't I feel all my great purpose oozing out at my fingers' ends, supplemented with a frantic desire to embrace my friend, when he hinted in the most delicate way possible, that there was a train from Newcastle at 11.25? Alas! for the frailty of human strength, I did. Little remains to be told, except that when I rejoined my wife, she and the pendulum and the thimble had managed by some kind of intuition to fabricate the object of my friend's call, and there lay my clean shirt, and collar, and handkerchiefs with pink "W. A. B.'s" in the corners, all ready for the 11.25.

When I was a lad I was under a tutor who taught his boys to walk about with both eyes wide open, and encouraged us to cultivate an intimate acquaintance with Nature; and whether it was a dormouse or a chemical chest, wild flowers, birds' eggs, luteridies, fossils, or hairy caterpillars (which we used to race on our desks for slate pencil, and put in the French master's hat), there were few boys who had not a hobby of some kind. We used to do some pretty things in the way of eggs, but Jack Frost's manipulations on the windows of the carriages of that 11.25 train were marvels of crystallography. My friend, the man in the moon, danced about behind the leafless trees, laid wait for us as we emerged from long tunnels, looked over the ridges of deep entanglements, and tried all he knew to get a peep at us, rolled up like two mummies, but it was of no use. Our bedroom windows were covered with blinds woven in a pattern no human fingers could trace, worked by subtle agencies in obedience to laws framed by a Wisdom "past finding out."

A few minutes at York, where I spent in silent attention to a tongue (and "Jones" and much speech when you have only ten railway minutes for supper), and we were off again. The moon had been waiting outside the station, and kept up with us to Peterborough, where it helped to collect the tickets, and walked boldly into our carriage, saluting us as personal friends, after which, I think, it went to bed, an example I was nothing loth to follow on arriving at King's Cross, as the Show was not to be opened till 12 o'clock.

I paid an early flying visit to the office of "our Journal," but the Editors had not yet arrived. I was very heartily welcomed by a large black-and-white cat, which was waiting at the door either for me or the milkman. He rubbed himself against my new black trousers in the most familiar way, and said as plain as a cat could say, "Very glad to see you—can smell you in the small-brain loc—more in

my way than flowers—very glad to see you," and then he set up his back like a (I don't suppose my friend Wallace will read this) Belgian, and mounted guard again. "Here 'y' are, sir! sumpence a mile, or two shillins a hour. Where to, sir?" "Crystal Palace station." "Fine morning, sir. I'd like to run yer all the way down, sir!" We had no time to spare for the road, but took the rail, and landed at the Palace in time to take a short stroll before the doors of the *sacrum sanctum* were thrown open to the public, which was done with commendable punctuality at twelve to a minute.

The collection was, as stated last week, for numbers without a parallel; and now for a short run through them. We don't all see with the same eyes, and perhaps it is as well we should not. I compared notes with friend Harbesy in one or two classes, and in the main we agreed. Where we did not agree—well, we agreed to differ. In my remarks on this or any other show, what I say I say in a friendly spirit. I must say it in my own way, or I cannot say it at all; but the wish is far from me to write as an oracle, and quarrel with those who think differently. Said a fiery-faced old gentleman to his fellow inmate of a coffee-room: "We 'nt you take mustard with your beef?" "Thank you, no." After a pause, "Do take mustard with your beef!" "Thank you, I don't like it." Another pause, and then says the fiery-faced gentleman: "We 'nt you take mustard with your beef?" "Thank you, no; I'm much obliged." Then, rising fiercely, he left, with, "I 'nt sit near any man who 'nt eat mustard with his beef!" Readers of "our Journal," I shake hands with you all. You may all eat mustard with your beef, or the contrary. I only wish you may always have plenty of beef to eat with your mustard.

Class 1 and 2, *Clear Yellow and Buff Norwich*.—The best birds were, beyond doubt, those exhibited by Messrs. Benrose & Orme. Condition and completeness of feather assisted the first prize Jonque (H. Vine); No. 19 (Benrose & Orme) and 65 (Messrs. Moore & Wynn), equal second, showing signs of recent visits to the laundry. Condition rightly turned the scale. The first (89, cup) and two equal second Buffs (Benrose & Orme), were gorgeous birds, but to my eye deficient in meal. No. 117, very highly commended (W. Walter), was my idea of a Mealy Norwich, and I liked it much better than 118, third prize.

Class 3 and 4, *Even-marked Yellow and Buff*, I could not understand. According to my ideas of Even marking (or Variegation proper), there were not half a dozen birds correctly entered. The bulk of them should have been entered among the seventy-nine birds in the next two classes, comprising the Ticked and Unevenly-marked birds. No. 158 (Moore & Wynn), first prize, Even-marked Yellow, was marked on each wing, and had a cap. Whether such be even marking or not, is one of the points which ought to be definitely settled by the Jockey Club of the "fancy." My own opinion is that it is not. No. 159 in the same class (Moore & Wynn) was the best pencilled bird in the class, but not so pure a Jonque. No. 188, first and cup, Even-marked Buff (Moore & Wynn), was all quality, and the awarding of the cup to him was sound judgment. No. 167 (H. Vine), and 181 (S. Bunting), were the right sort.

The *Ticked classes* contained some very beautiful and very cheap birds. The winners were excellent. Benrose and Orme's Buffs were "found" at the prices, as compared with catalogue figures generally.

Class 7, *Crystal Yellow Norwich*, was a very moderate lot, the first prize bird, No. 282 (T. Fenn), only having very decided merit.

The *Duffs*, however, Class 8, were a good sample. No. 332 (J. Young), is the best bird I have seen out this season. 325, second (J. Judd), carried a beautiful crest, as did 302 (W. J. Toon), and several others "mentioned." 331, very highly commended, was a fine specimen of a clean bird with dark green crest; and 324, very highly commended (J. Judd), though very heavily marked, was magnificently crested.

The *Delphin* entries were not numerous, only forty-three in four classes. Mr. Walter took the first prize and cup with 343, *Clear Yellow*, and also first with a group of six in its place. Can it be possible that Mr. Walter is going into Belgium? He whose name has always figured so highly among the Golden Jonques and splendid Measles, sitting like brides beneath their gossamer lace veils? Walter, don't let this cup wear your affections from your first love. I am serious—*bona fide*. I saw nothing marvellous among the Belgians, but Mr. Hawkins made his mark among them.—W. A. BLANSTON.

(To be continued.)

## SUGGESTIONS ON THE CRYSTAL PALACE CANARY SHOW.

It seems to me that a great advantage would result from placing the tickets at the bottom of the cages, as when placed in the centre, in order to obtain a glimpse at some birds, it became necessary to frighten them from behind their screen of tickets, which in some cases numbered three—viz., the number, award, and "sold" labels. The labels being fastened with long pieces of wire were very dangerous—birds' legs became easily entangled. I saw several lamed, possibly from this cause. Draughts ought to be carefully guarded against by exhibitors, especially in the case of Belgians. Some of the cages not covered at the sides and back contained shivering specimens; one bird in particular

had already become asthmatical. I noticed a sad case of fighting among "six British birds in one cage"—the victim seemed almost dead; when I called the attention of a policeman to its sufferings, the cage was strewn with its feathers, and the bird's back bare and bleeding. Surely this "happy family" were of too short acquaintance to be sent to a public exhibition.

The height of the stage bearing the Lizard and Cinnamon Canaries was much preferable to that of some others; that of the Clear Yellow Norwich, No. 1 and upwards, was too low to examine the birds with comfort. I had quite a backache in consequence, although I am only of medium height. I hope the numbers next year will be placed more in consecutive order. I had often to apply to the attendants for guidance.

I must just mention one little circumstance (I would it were less rare), and that was the amusing lameness of a three-year-old Goldfinch, No. 813; on presenting one's finger it was instantly and vigorously assailed by "Goldie."—C. A. J.

For several years a few exhibitors have been allowed to show, without charge, birds and cages for sale as extra stock, the company taking the usual commission on all sold. The number exhibited in this way has so increased year by year that this Show nearly every extra stock list was returned, with notice that only about half the number could be admitted; the number shown as extra stock to be regulated by the number of entries for show. When at the Palace my attention was called to eight birds and cages, "extra stock," not included in the catalogue, and without any name attached, which I was assured belonged to one of the company's servants employed in the Show. Personally I very strongly object to extra stock being exhibited, as it is unfair to private exhibitors, and very often spoils the sale of show birds; but nothing will justify the company in allowing their servants (who are always about among the birds, and are being constantly asked by intending purchasers to recommend them a bird), to compete with regular exhibitors in this underhanded manner. Unless these practices be discontinued, I for one shall decline to exhibit at the Palace another year.—AN EXHIBITOR FOR MANY YEARS.

## PREVENTING BEES SWARMING.

I WILL state what is my intention unless you can suggest any better plan. I have two stocks, swarms of last year, with which I commenced bee-keeping; the one, by-the-by, is very strong, as it consists of a double swarm, through two swarms having taken place in one day; and the latter, one of its own accord, following the other which had been lived just before; the other stock being a very good single swarm hived in the end of May. What I propose doing, is to put a super on (a wooden box to hold about 20 lbs.) as soon as expedient, and also to give room underneath by placing a box as a nadir, of about 5 inches in depth, the top of the box having a hole 6 inches in diameter in the top of it, the entrance of course in the floor-board. Will this be right, and will it prevent swarming?

I should like you to be good enough to advise me as to the best time to put on the super, as also the time for the nadir, and which should be put on first? It is my intention to put a small piece of guide comb in the super, and also to remove the nadir again at the end of the autumn. I am anxious to give room before the royal cells are made, and at the same time not give the room too soon. I may add that the bees are in good-sized and well-made straw hives with flat tops, having adapter boards, with a 2-inch hole in the centre, fastened to the top; they are in a bee house entirely closed in front, and I have room for eight hives in it, in all, and am anxious to increase my stocks by purchasing swarms, instead of letting my own stock swarm if possible; this is my reason for troubling you.—E. M.

We may as well state at once that we know of no mode of management which can be absolutely relied on to prevent swarming, and more than this, that we have very grave doubts whether any such system will ever be devised. All that we can do is to give sufficient room at the proper time, and endeavour to avoid an extreme temperature. You must use your own judgment according to the circumstances of the case, and the strength of the colony, as to the best time for putting on a super. If put on too soon it cools the hive, probably checks breeding, and sometimes seems to be altogether disregarded by the bees, which ultimately swarm without ever taking possession of it; and if put on too late, it is of course equally useless. There seems



## WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 3—9, 1870.	Average Temperature near London.			Rain in 13 years.	Sun Rises.		Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.				
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	Days.	m.	s.			
3	Th	Meeting of Linnean and Royal Societies.	49.9	32.2	41.0	14	41	6	41	5	34	7	52	af 6	1	12	8	
4	F	Length of day 11h. 5m.	49.7	31.5	40.6	11	42	6	43	5	51	7	38	7	2	11	55	63
5	S	1st SUNDAY IN LENT.	48.9	31.8	40.3	16	40	6	43	5	11	8	3	9	2	11	41	64
6	Scn	Meeting of Entomological Society, 7 P.M.	48.6	32.2	40.4	14	38	6	46	5	31	8	7	10	1	11	27	65
7	M	Meeting of Society of Arts and Royal Microscopical Society, 8 P.M.	49.1	32.4	40.7	18	36	6	48	5	51	8	11	11	5	11	13	66
8	Tu		49.1	31.5	40.3	18	34	6	50	5	14	9	10	10	6	10	58	67
9	W		49.2	31.1	40.1	12	31	6	51	5	41	9	16	9	7	10	43	68

From observations taken near London during the last forty-three years, the average day temperature of the week is 44.2; and its night temperature 31.8. The greatest heat was 79, on the 4th, 1827; and the lowest cold 14, on the 3rd, 1852. The greatest fall of rain was 0.48 inch.

## TABLE MAIZE.

**F**EELING greatly interested in spreading this very useful autumn vegetable, and a certain responsibility always attaching itself to the first promoter of such matters, I take this occasion to report on two seasons' experience. As the last two years differed so considerably, it is fair to assume that some knowledge has been obtained both as to the right method of culture for our climate, and also as to the most suitable of the twenty varieties introduced. Certainly the popularity of Maize for table use is increasing, for spontaneous notices of it have appeared in several leading journals besides those devoted to horticulture.

At first it was attempted to spread the seeds among friends, but these took so languid an interest in it that I sent the rest to Messrs Barr & Sugden. I mention this here, for the number of letters sent to me since the notices abovementioned appeared required this relief, and a few seasons will decide as to the value of Maize now.

In order to secure a fair chance for this very important table vegetable, let me state the results of our own trials of it. In 1868, which was an exceptionally warm year, the cobs were very large and fine, but the dry season and my own inexperience of its culture, which comprises attention to water supply at such times, was perilous to its success. In 1869 the plants—from seeds sown without bottom heat in boxes under glass early in April—were planted out at the end of the month, being then about 6 inches high. This proved to be, even in our island, too early a date, for the cold nights of May turned the plants yellow, and they made little progress. About the middle of April some rows were sown in the open garden ground, and they took time to grow, becoming taller than the first eventually, but did not, as the year proved so cloudy and stormy, ripen their seeds so thoroughly as was desirable. Seeing this, we selected them for table use in a green state during the whole of October, and they were in sufficient number to supply many friends. Later I obtained through the Editors of the *Gardener's Chronicle* some Ten-weeks Maize from Boston, which was sown early in May. Mr. Clarke, of Hampstead, who has made numerous experiments by mutilating the male flowers, so as to increase the quantity of the whole crop, sent me some seed from mutilated plants, and also some very curious hybrids from Pau, grown in Yorkshire by the Rev. J. D. Horner. Two other varieties of Ten-weeks Maize from Covent Garden, and some splendid common yellow Maize from Algiers, made up, with my twenty new varieties from all parts of America, a collection for essay such as had never previously been brought together in England.

The season of 1869 proved most trying to the success of Maize, being here extremely cold in the spring, generally sunless in the summer, and stormy in the autumn. My plants were subjected to an exceptional trial: for, having been staked insecurely, or rather at too low a height, on September 12th, when at their full height, they

were exposed to a hurricane of 55 lbs. pressure to the square foot, being a force of wind unknown to English cultivators, who have other difficulties to meet, no doubt; though, as I write, the island is covered with snow 9 feet deep in the drifts, with a gale of cutting wind from the north-east, and my thermometer (much exposed) registered 10° of frost on the 12th. Wind is, however, very hurtful to Maize, for my plants were prostrated, and many injured, but being still rooted they were raised up, and staked afresh, and with every leaf scorched and torn, they still ripened their seeds. After this no one can say Maize will not succeed.

It would be a pity if isolated failures, caused generally by ignorance or neglect, should prejudice the minds of any; for the introduction of this long known and most nutritious foreign vegetable ought to be aided generally. I should imagine, if the plants were well forwarded in April under glass, and hardened a little afterwards, that during May, whenever the spring frosts were no longer very dangerous, would be a fair time to plant them out. The seeds have also now had two seasons of acclimatation. The plants require a very rich soil and moisture during their chief period of growth in July and August, but the culture is as easy as that of any other vegetable. They are grown generally in rows at, say, 15 inches from plant to plant. Last season the blue varieties showed a disposition to disappear, and some pure white kinds to become more yellow. The red varieties remained as usual. Some small, extremely beautiful purple sorts were not so successful, but these are not so valuable from their size or delicacy as the large pure white from Georgia. The mutilated seeds certainly produced more cobs per plant, which was itself sensibly shorter and better adapted for windy localities. The Ten-weeks Maize was, of course, ripe before the rest, but the cobs were small, though numerous. On the whole it is the large white, pink, and pale yellow sorts which I prefer for table use. I am told that in Canada the red cobs entitle the finder to the privileges accorded to the Mistletoe; perhaps this might render them the most popular. The well-known "pop corn" of the confectioners is very pretty in the cob, and explodes into quaint shapes like melted lead in water, and is always a favourite with children. These last, it may here be said, appear to be amazingly fond of "green corn," and we know that the youthful palate is not that indiscriminate approver some consider it to be.

No one would believe the difficulties experienced in obtaining information as to a system of culture which would suit our climate, but perhaps the one point where I was left to decide for myself was the proper moment to use the green cobs, and the varying time to cook them. By groping, however, carefully at the extremes, we soon arrived at the knowledge of the size and condition we liked best. It is when the grains are about as large and as hard as a full-grown Marrowfat Pea. Before this period they can be taken of course, but are then more tasteless, and require less boiling; thirty minutes we found to be about the time. Then, with fresh butter spread over them and a little pepper, they were served up generally.

cut into three pieces when the cobs are so large. It certainly requires some skill to detach the grains neatly with the silver instruments in use; the popular but ungented way being to eat them off the cobs when these are cut into small pieces. This plan will be always in vogue with children, and is not to be despised. The favour is between that of *Asparagus* and Peas, with a dash of corn, and considering that these general favourites are past in the autumn, it is no small advantage to reproduce them. As to the nutritious qualities, the comparison remains in favour of Maize, which, indeed, is unsurpassed in its way, and constitutes the food of millions of people as well in the green state as when dried.

The plants when petted as a row of Hollyhocks would be, are very handsome and fine-foliated.—T. C. BARNET.

### CONIFERS REPLACING THEIR LEADERS.

In a late number "C. W. D." mentioned some small Spruce Fir having formed fresh leaders after beheading, and inquired if such an occurrence is common with Conifers of other kinds. For his information and that of others, I may state that some members of this great family appear to submit to partial cutting down almost as well as deciduous trees. Certainly none of them will bear completely cutting off at the collar, but many appear to form fresh leaders of as upright and symmetrical a growth as deciduous trees do under similar circumstances. There is, however, much difference in this respect, the worst sufferers being the class of which the Scotch Fir may be regarded as the type. This includes *Pinus insignis*, *austriaca*, *ponderosa*, *Cembra*, and others; while the *Thuja*s, *Diotas*, and some of the *Cupressus* form fresh leaders with more or less rapidity according to the condition of their health and other circumstances. Perhaps the best of all in this respect is the Wellingtonia, which almost equals deciduous trees in forming fresh branches and leaders, when the situation it is growing in is favourable to its doing so. Some years ago one of the best specimens we had, by some means which I could not exactly make out, though I blamed the squirrels for the mischief, had its leader cut off early in summer, 8 or 10 inches being ripped clean off. This, I believe, was in 1861, and the habit and accommodating character of the tree not being so well known then as now, I naturally feared that two or three years' growth might be lost. This, however, was not the case, for the plant speedily formed a fresh upright shoot, and, long before the season was at an end, it was impossible to discover where its former leader had been cut. The same thing happened again two years later with the same result, and in neither instance was anything done *à la vue* to train up a leader from a side shoot. Still more remarkable instances of this tree accommodating itself to circumstances have come under my notice, for in the winter of 1865-66 we planted out a number of trees of this species that had been standing two years in a nursery bed, and were from 3 to 5 feet high; these, although well rooted, and taken up and replanted with care, did not, as a rule, succeed well. Some of them grew without showing a check, while a few died entirely, and a good many died down more or less, some only showing life in a few of their bottom branches; in fact, the centre stem, with all its branches, died down to within 3 or 4 inches of the ground. Being anxious to see the result of this, I left many of them untouched, and their appearance was anything but prepossessing during the whole of the summer of 1866, but towards the autumn I observed indications of fresh shoots from the collar, and the next season three shoots pushed up amongst the dead branches. As I had made up my mind to act on the principle of "non-intervention," I did not remove their branches, except in one or two cases, and never tied up nor attempted to train a leader in any shape or way whatever, and the whole of the trees so treated present now as uniform and symmetrical an appearance as can be desired; moreover, as there were twenty or more of this class, it was not a solitary case. Some of those which did not die down so low as those above described, recovered in like manner.

Turning to other Conifers, I may observe that many trees of this class that are liable to lose their leaders, are difficult to coax into the condition of remaking one. Among these are the family of *Picea*—the Silver Fir itself not being very ready to do so. Generally when it does, several rivals of equal vigour appear, and two or three tops are not uncommon, the controlling influences of this tree to limit its leaders to one not being so great as in the Wellingtonia, neither is its power of forming one so perfect, as we often enough see young plants

for years at a standstill, with no leader whatever. This is especially the case with young plants of *Picea Pinsapo*, and some plants of *P. cephalonica* are not much better; but it often happens that a plant after remaining three or four years in a stationary condition will suddenly make a rapid growth, and continue that growth for years if the situation and other circumstances be favourable to its doing so. One of the most remarkable instances of this kind we have here occurred some years ago. A tree of *Picea nobilis*, which I believe was planted about 1815, lost its leader two or three years afterwards, or failed to form a perfect bud to furnish one, and for eight or nine years this tree resembled a low spreading shrub, not more than 3 feet high. Eventually, however, two leaders were formed, and as there was some uncertainty whether a like misfortune might not befall the tree again, both were left to grow for two years, when the taller of the two was ascertained to have made a growth of a little over 8 feet, the other only an inch or two less—tolerably good work, it may be said, for two years; and this growth, I may remark, was not without side branches. One of these leaders was subsequently removed, and the growth has continued to be almost equally rapid ever since, the tree being now upwards of 30 feet high, and, doubtless, would have been more, only the last three or four years it has borne heavy crops of fruit. The growth, I may add, is as symmetrical as it is possible to be, the leader being as upright as a flagstaff, and although not so densely clothed with branches as some other trees, they are by no means thin.

I will now mention, among other instances of Conifers producing leading shoots without the artificial aid of tying up a branch to make one, *Taxodium sempervirens*, which, however, like the *Picea nobilis*, has a tendency to produce several leaders when only one is wanted; but of course these can easily be reduced in number. I may here observe that the plan I have adopted with the young shoots of this plant and that of some *Thuja*s and *Cupressus*, where there is a greater number than is wanted, is to tie a string to the tips of those not wanted, bend them downwards, and tie it to the stem lower down or to some of the branches. Such treatment converts a leader into a branch without the brutal operation of cutting, and it is easy to see how all the tribe of *Arbor-Vitæ* may be treated in this way.

I cannot close this article without detailing another case, perhaps more remarkable than any of the above, where a Conifer was induced to form a fresh leader under treatment different from that to which such trees are usually subjected. In the conservatory here a fine *Aranea excelsa* occupies a central position, and is about 25 feet high, with a uniform spread of branches 18 or 19 feet in diameter. The growth of this tree of late years being more rapid than was required, especially during 1868, towards the autumn of that year I cut off about 18 inches from its leader, and was agreeably surprised to find that last year it furnished another as upright and symmetrical as before, and with a finer tie of branches in the usual wheel fashion of five branches. I may add that last year the upright growth was scarcely less than in the preceding year, notwithstanding the check it must have received at starting; but as greater height is not desirable, we have subjected the tree to further amputation to the extent of a foot, and I hope a similar result will follow. I wish the same check could be given to the growth of the tree in a lateral direction, but I fear that to shorten its branches would destroy that beauty of form for which the tree is admired.—J. HORSN.

### THE ROYAL ASHLEAF POTATO.

I BELIEVE I was one of the first favoured few to receive the Royal Ashleaf Potato after it came into Mr. Rivers's hands. Mr. Rivers in a letter informed me of its private history, and not long afterwards the Rev. W. P. Ridsdell did me the same act of kindness. James Ashwin, Esq., of Brelford Hall, near Evesham, had not then been long dead; and delicacy in consequence of what Mr. Rivers wrote always prevented me mentioning otherwise than privately the true name of the raiser of the Royal Ashleaf. The very first person to whom I sent the Potato in the spring of 1863, along with other sorts for her to grow for distribution amongst her cottage parishioners, at Wotton-under-Edge, Gloucestershire, was the late Lady Georgiana Oakley, and soon after that I sent it to a gentleman at Bath. In one sentence,—to whomsoever I have privately presented the sort, I believe I have always told its private origin up to this day. Once more, I am happy to find that Mr.

Rivers has informed the public of the history of this variety; nevertheless, as it is so suitable for most soils, and is sure to have at least another ten-years run of popularity, allow me to request that the much respected name of "Rivers" should be preserved. Everybody to whom it is of consequence is aware of its origin, but as it has been so long and universally known by its present prefix, it would be no boon now to withdraw it. At one and for ever disclaim having connected this Potato with Mr. Rivers's name; that is everybody's fault; if fault it can be called, for at any rate Mr. Rivers was the chief cause of its being introduced to the public. Unlike Mr. Rivers, I have about 200 kinds of Potatoes to make trial of this year, and I wish my ground were as extensive as his is at Sawbridgeworth for the purpose. —ROBT. PENN.

## LETTUCES, AND THEIR CULTIVATION.

(Continued from page 142.)

THE greatest scarcity of Lettuces is usually in May and June, when those from the autumn sowings are over, and those from the spring sowings should be in use; but from due regard not having been paid to the first summer crop, there is often a want of succession between the spring and early summer crop.

### SPRING AND SUMMER LETTUCES.

For the first summer crop preparation should be made in the September preceding, by making up a dung bed 2 feet high at the back, and 1 foot high in front. On this place a two-light frame. The site should be dry and sheltered from the north and north-east, but open and sunny. The lights must have a steep incline, so that accumulated moisture may run down the sashes, and not drip on the plants. The heat of the bed not being required, the bed should be made sufficiently early to allow of the heat subsiding before sowing, which should be performed in the second week in October. The bed should be covered with 6 or 8 inches of light soil, which must not be rich, though if poor you may mix with it a little leaf soil, which will be sufficiently stimulating. It must be brought to within 6 inches of the glass, but not nearer than 4 inches. The kinds best for this sowing are Bath Cos, All-the-Year-Round, and Tom Thumb.

Sow moderately thickly, and keep the lights close until the seeds germinate, then admit air freely, and in mild weather draw them off; and when they are replaced at night or in wet weather tilt them, so as to admit an abundance of air. In severe weather the lights should be kept close, and no air admitted until the temperature within the frame becomes as warm as that of the external air. This will be the case when the plants have been for a time deprived of air in severe weather; the plants and soil may be frozen, and if air be given before the leaves are thoroughly thawed they will be liable to damp off. Protected as the Lettuces ought to be by mats over the lights in severe weather, the protecting materials must not be removed until the plants and soil are completely thawed. Little water will be needed, and if it must be given, give it early in the day, and in fine, mild weather only. If the plants come up thickly, thin them out as soon as they can well be handled, and plant apart, drawing out the weakest. The weather is often in our climate quite mild and sunny in December or January, and the plants, if the lights are at all kept over them, are apt to become drawn. To keep down growth more air must be given, for it is nothing more than a slow, steady growth we seek at this period, therefore allow a free circulation of air whenever it can be done safely, at the same time affording protection from wet.

By February the young Lettuces will be fit to plant out if the weather is mild; at least the ground for planting should be prepared by that time. The situation should be sheltered, the soil light and rich, but no manure must be applied near the surface. In damp soils, and indeed all soils, it is well to take up trenches 2 feet wide and 1 foot deep, put in each 3 inches of fresh stable litter, cover it with soil from the next trench, and so on. The plants, being well hardened-off, may be planted out at the end of February, or as soon after that as the weather permits. Six inches each way will be ample for Tom Thumb, 9 inches for All-the-Year-Round, whilst Bath Cos should be allowed 1 foot from plant to plant every way. The holes must be well closed around the plants, and if it is mild, dry weather, water should be given as the planting proceeds. The ground should be frequently stirred with a hoe between the rows, but not in very wet weather.

At the end of January another bed should be got ready in the same manner as for the October sowing, and by the second week in February the heat will have subsided sufficiently for sowing the seed. The kinds recommended for the October sowing are the most suitable. The same course of treatment should be followed as for the October sowing, only as the sun will have greater power more air will be necessary; by tilting or withdrawing the lights it must be freely admitted, so as to keep the plants stiff, for if they become lanky and weak they are of little value. Thin the plants out, when large enough, to 1½ inch apart, and though water is to be given as required, it must be done cautiously and early in the morning. Plant out in April on sheltered borders.

Early in March another sowing should be made at the foot of a south wall, the kinds being those mentioned for the October and February sowings in frames, and the plants from this sowing will afford a good succession to those obtained by sowing in February. Protection should be given them at night, and by day during severe frost, by branches of spruce or other evergreens, and though such protection is necessary, it must not be practised in mild weather, as the plants are then liable to be drawn up weak. The plants from this sowing must be thinned out when large enough to handle, and be watered as necessary; and as water will only be required in bright weather, when the nights are generally frosty, the water ought to be given in the early part of the day. The plants will be fit to plant out at the end of April or beginning of May.

At the same time as the above last sowing of spring and early-summer Lettuces is made, summer Lettuces, both Cabbage and Cos, should be sown in a similar position, to form a succession to the hardier sorts sown at the same time, which, from their greater hardiness, will come in some days before the summer kinds; hence the necessity of sowing the first summer Lettuces when the last of the hardier kinds are sown.

The best summer Lettuces are:—

*Malta or Drumhead*.—Large, crisp, and excellent.

*Neapolitan*.—Very large, forming a good heart, and earlier than the Malta; crisp and tender, but not so good in those respects as the Malta, though by some preferred to that excellent sort for its better hearting qualities. It is the best of all the Cabbage Lettuces for summer.

The above are Cabbage Lettuces.

Wheeler's Tom Thumb and Dickson's All-the-Year-Round are also good for summer and autumn use, and as they heart more quickly than either the Malta or Neapolitan, they are very desirable for successive summer sowings.

Of Cos Lettuces:—

*Icely's Non-such*.—Very large, blanches well without tying, stands long without running to seed, crisp, and excellent.

*Paris White*.—Of good size, leaves turning in well, so that blanching is effected without tying; it is crisp and excellent. It requires rich soil, and is then the best of summer Cos Lettuces.

The Black-seeded Bath Cos is equally good for summer or for standing the winter, and is the most useful of all Lettuces. When well cultivated and properly blanched it is equal to any other in crispness and flavour.

There are, besides, many Lettuces possessing excellent properties, in some respects equalling those named; but the above answer every practical purpose, and there is no necessity to multiply names when we have in a small number of varieties all that is desirable. —G. ABBEY.

(To be continued.)

## THE CRYSTAL PALACE FLOWER SHOWS THIS YEAR.

I AM glad to be able to say that the shows at this favourite place of resort promise this year to be as good and interesting as usual, and the managers, with that liberality and good judgment which mark all their proceedings, have introduced some new features and given more prominence to some old ones. Thus, at the May Show, there will be renewed the grand contest in bouquets, which made so fine a display last May; but in order to give a fairer chance to competitors there will be separate classes for amateurs and professional artists; then some special arrangements are in contemplation to make the competition more international than it was last year by inducing the best bouquet-makers of Paris to send over some of their bouquets. At the June Show there will be a contest in table decorations on the same scale as last year, while there

will be offered for that most popular class of flowers, the Zonal Pelargoniums, prizes for nurserymen and amateurs for the best Tricolors, Bicolors, and Doubles. In these we may expect a grand display, the time of year being favourable. Messrs. Cutbush will make their usual grand display of Hyacinths and other spring flowers; and when I add that Mr. Baines has come near London and will be a constant exhibitor, we may expect to see some grand stove and greenhouse plants. The autumn Show is discontinued. Let us hope that a successful season may reward the Company's efforts.—D. Doal.

### CONIFERS AT KENFIELD HALL.

I read with interest the remarks of your correspondent, "C. W. D.," in your number of February 17th, respecting ornamental Conifers. We have three trees of the Abies Nordmanniana, one measuring 24 feet high, and 15 feet in diameter; the second 15 feet by 10; and the third 10 feet by 6. These trees are in perfect health, and give no signs of blindness, as described by your correspondent. There are two kinds of Conifers which become blind here (Kenfield Hall); they are Picea Webbiana, and the Sciadopitys verticillata, which I am sorry to say, do not succeed well with us. We have lost several of these trees through blindness. I have not seen any of the Spruces topped as mentioned by "C. W. D." They grow very busily in our soil, which is a rich yellow loam. The following is a list of most of the Conifers grown here:—

Abies—alba, excelsa nana, Brunoniiana, canadensis, Canadensis, densa, Menziesii, Morinda, nigra, orientalis, rubra, sibirica, Smithiana, Webbiana, and Wittmanniana. Anacardium imbricatum. Biota melleensis. Cedrus atlantica, Deodara viridis, Libani, and Libani argentea. Cypripedium Fortunei (male and female), koraiensis, and tardiva. Cryptomeria japonica nana, and C. japonica Lobbi. Cupressus Knightiana, Liversiana, Lambertiana, Lusitanica, MacNabiana, and macrocarpa. Dacrydium Frankii. Pinus patagonica. Juniperus chinensis, and communis. Picea amabilis, balsamea, bracteata, cephalonica, cilicica, Douglasii, Fraseri, hudsonica, grandis, Kibbutz nobilis, Nordmanniana, pectinata, Picea, Pandora, Pissano, and Webbiana. Pinus austriaca, Benhamiana, Bungeana, cedrica, Cembra, contorta, Contorta, Edgariana, excelsa, Fremontiana, Gerardiana, halepensis, inops, insignis, Jeffreyi, laricina, Lario, Lambertiana, lasiocarpa, magnifica, maritima, monostroma, montana, monticola, Mugho, Palasiensis, palustris, excelsa, patula, Piaster, Pinus, pyramidalis, radiata, Sibiriana, Strobus, and montana. Retinospora ericoides. Salisburia adiantifolia. Saxe Gothiana conspicua. Sciadopitys verticillata. Sequoia sempervirens. Taxodium distichum. Taxus baccata, adpressa, argentea, and ericoides. Thuja dolabrata and borealis. Thuja aurea, gigantea, japonica, pendula, and plicata. Torreya grandis. Wellingtonia gigantea.

These trees have been planted in our pinetum from ten to twenty years.—EDWARD COVENEY, Gardener, Kenfield Hall, near Canterbury.

### ROYAL HORTICULTURAL SOCIETY.

MARCH 2ND.

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. Prizes were offered on this occasion for the best single bunch of early Grapes for the best single bunch of late Grapes, and for the best dish of Asparagus, Sea-kale, and Rhubarb. Mr. George Johnston, gardener, Glamis Castle, Forfarshire, sent a fine bunch of Muscat of Alexandria, somewhat shrivelled in the berry, but of excellent flavour. Mr. Bauman, gardener to Lord Bagot, Blithfield, Rugeley, sent excellent examples of Lady Down's, beautiful in every respect, and of fine flavour. Mr. J. Woodward, gardener to Mrs. Torr, Garlands Hall, Ewell, sent Lady Down's, the bunches of which were small, but of fine flavour. The first prize was awarded to Mr. Bauman, the second to Mr. Johnston, and the third prize to Mr. Woodward.

Mr. T. Bray, gardener to E. A. Sanford, Esq., Synchard Court, Wellington, sent a very excellent dish of Asparagus, also of Rhubarb, the Sea-kale being rather inferior; he was awarded the first prize.

Mr. Meredith, The Vineyard, Garston, Liverpool, sent a fine basket of Alicante and Lady Down's Grapes, which had been grown in a house having a north aspect, and to this Mr. Meredith attributed their superior preservation, the sun not affecting the berries in this situation. In flavour they were inferior to the other samples before the Committee. A special certificate was awarded.

Mr. J. Walker, nurseryman, Thame, Oxon, sent some seedling Apples, which were not considered equal to others in cultivation. Mr. Hibblethwaite, gardener, Acland Hall, Middlebrough, sent a large collection of Apples and some Gloa Moreau Pears in very good con-

dition, which was awarded a special certificate. Mr. Cradlock, gardener to Lord Willoughby de Broke, Compton Verney, Warwick, sent a fine collection of Apples, which had been grown on young trees, to which a special certificate was also awarded.

Mr. George Bech, Castle Ashby Gardens, Northampton, sent some examples of variegated Ficus species, which, excepting as a curiosity or for garnishing, would be of little value, and were not approved of by the Committee. J. R. Fernyough, Esq., 18, Belisle Park, N.W., exhibited a very splendid lot of cultured dandruffs of tropical fruits, which he had presented to the Society, and for which the Committee passed him unanimously a vote of thanks.

FLORAL COMMITTEE.—Mr. Charles Lee in the chair. There was on this occasion an excellent and varied display, the room presenting quite a bright appearance from the numerous brilliant-coloured flowers of Camellias, Chinese Primulas, Cyclamens, and Orchids.

Prizes were offered for six Camellias in pots, for twelve cut blooms of the same shrub, for six forced or unforced shrubs in flower, and for six pots of Lily of the Valley. Of Camellias in pots, two collections were exhibited. That from Mr. Turner of Slough, to which the first prize was awarded, was of great merit, the plants being from 4 to 5 feet high above the pots, having fine glossy foliage, and being well furnished with flowers. The kinds were Saccio Nova, La Costituzione, Mexicana nova, De Notaris, and Malane Lodoi, shades of rose and red, and Il Cygno, white. Mr. Wilkie, Addison Road, Kensington, was second.

For twelve cut blooms of Camellias, Mr. A. Wilkie was first, Mr. Turner second, and Mr. Howard of Balham, third. Messrs. Veitch, who did not show for competition, and a special certificate of merit was given to them for Retenata rose-plena, a splendid brilliant crimson variety; Mathotiana, one of the finest of blood-reds; De la Reine and Jenny Lind, two of the most beautiful of the white slightly-striped kinds; La Pace, &c. In the other stands were good specimens of the old Double White, Donchelaeri, Fimbriata, Chandler's Elegans, &c. Mr. Stone, gardener to F. Campbell, Esq., also sent a few cut blooms; and Mr. Osman, gardener to R. Holland, Esq., Stanmore, a stand of twelve blooms.

There was only one exhibition of flowering shrubs, consisting of a Hydrangea, Rhododendrons, Dactylis gravis, and the yellow-flowered Azalea Gloriosa. This came from Mr. Wilkie, to whom a second prize was given.

For Lily of the Valley, Mr. W. Howard, Bedford Hill, Balham, was first with excellent pots. Mr. Wilkie being second.

Of Orchids, Messrs. Veitch sent a fine collection, in which were Dendrobium aggregatum majus, very conspicuous by its numerous orange blossoms; a very fine Cypripedium villosum, Cattleya Warscewiczii delicata, a lovely variety with the lip beautifully lined with lilac, and yellow in the throat; Dendrobium laevis, D. crassifolium, very fine; D. acutatum, D. cucullatum, a very fine specimen, forming as it were a cascade of flowers; Odontoglossum cristatum, a fine specimen of Dendrobium glaucum, Cypripedium Harrisianum, Phalaenopsis Schilleriana, Leha Pilcheri, also a pretty variety; Mormodes colossus, and fine varieties of Lycaste Skinneri. Messrs. Veitch also had along with this group fine pots of Crocuses.

Mr. B. S. Williams, of Holloway, sent a large collection, containing many rare Orchids and fine specimens of others more generally cultivated. Among them were fine specimens of Vandas, including V. gigantea, Phajus grandifolius, Lycastes, Odontoglossums, as Alexandre, Cervantes, and cristatum, and Lycaste lampyris, with the lip delicately fringed; and though their general colour is greenish-white, with the centre of the lip yellowish, the flowers have a pleasing effect. Mr. Williams had intermixed with this collection Chamærops Ernesti-Angusti, and several Palms.

Mr. Denning, gardener to Lord Londeshborough, also contributed a fine group of Orchids, among which was a remarkable specimen of Dendrobium glaucum, with its peculiar pendulous grass-like inflorescence in great profusion, forming a fringe all round the pot; Phalaenopsis Schilleriana, with very large flowers; Odontoglossum, bursifolium, and Loddii, in the same group; Cypripedium villosum, bursifolium, and Loddii; Calanthe nivalis; Lycaste Skinneri, with very large flowers; Odontoglossum triumphans, very fine, and O. Rossi, several Dendrobiums, Vanda tricolor, &c.

The most remarkable specimen among the Orchids was, however, the Dendrobium noble shown by Mr. Pilcher, gardener to S. Rucker, Esq., West Hill, Wandsworth. This was growing in a wire basket and suspended, but if spread out would doubtless have had a diameter of 10 feet. Thus grown the plant had a most graceful appearance, and being covered with a multitude of flowers it formed a magnificent object. Another remarkable specimen was the Odontoglossum Rossi, shown by Mr. Wilson, gardener to W. Marshall, Esq., Clay Hill, Enfield. This had twenty-four fine flowers, and was the finest plant of the kind ever exhibited. Mr. Wilson also sent blooms of ten beautiful varieties of Cattleya Triana.

A large pan of Anacardium Loxii from Mr. Bennett, gardener to W. Terry, Esq., Peterborough House, Enham, was one of the finest we have ever seen. Mr. Williams, of Holloway, had Demomorus plumosa, a very distinct Palm, not requiring a high temperature, and a new Asparagus, also a collection of his hybrid Asparagus noticed in previous reports, and with the numerous fruit now colouring well, and having a very ornamental appearance.

Mr. Green, gardener to W. Wilson Saunders, Esq., sent the male

and female plants of *Stangeria paradoxa*, each with its peculiar conelike fructification; likewise *Azalea cuspidata*, a handsome species.

From Mr. W. Paul, of Waltham Cross, came bedding *Pelargonium* Waltham Bronze, with a very richly coloured bronze zone, of great depth. This promises to be a great acquisition if the colour remains as bright in summer as it is at present, and we are informed that it does so, and even improves. This, however, is too early to judge of its properties for bedding.

Mr. Turner, of Slough, again exhibited a collection of *Ivies*, which were fully noticed in the report of the January meeting; the new *Rose*, *Marquise de Mortemar*; three fine baskets of Chinese *Primulas*; Mr. Kutter and Mrs. Headly *Tricolor Pelargoniums*, and a small collection of *Dracaenas*.

Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, contributed a splendid collection of *Cyclamen*, consisting of various ages; some of the plants one year old could not have had less than one hundred flowers, and one three years old had between two and three hundred blooms. Mr. Wiggins also sent a white-flowered variety, named *album frimbriatum*, from the edges of the petals being irregularly toothed, giving a fringed appearance. Messrs. Dobson & Sons, Isleworth, exhibited a collection of Chinese *Primulas*, several of which were very good in the colour and size of the flowers, as well as in the habit of the plant. Mr. Wiggins likewise sent very good red and white varieties; and some, having the flowers striped, may become the parents of a new strain.

Messrs. Standish & Co. of the Royal Nurseries, Ascot, brought an *Azalea* called *mollis carnea*, which, it is stated, is from Yeddo; the flowers are salmon-pink, with a peculiar orange tinge in the upper petal. From Messrs. John Waterer & Sons, Bagshot, came a beautiful golden-variegated variety of *Cupressus Lawsoniana*, and *Reinospora obtusa erecta*, a pretty *Arlor-Vitis* like variety; also *Cotinus Lambertiana dimosa*, a most singular-looking dwarf.

First-class certificates were awarded to Mr. C. Turner, for *Rose Marquise de Mortemar*; to Mr. Green for *Azalea cuspidata*; to Messrs. J. Waterer & Sons, for *Reinospora obtusa erecta* and *Cupressus Lawsoniana*; an arrow to Messrs. Veitch, for *Dendrobium cucullatum giganteum* and *Leolin Pilcheri alba*; and to Mr. B. S. Williams, for *Gemonocarpus plumosus*. Special certificates were given to Mr. Green for *Stangeria paradoxa*; to Mr. Wilson, for *Odontocissum Rossii*; to Mr. Pilcher, for *Dendrobium nobile*; to Messrs. Veitch, for a collection of cat *Camellias*; to Mr. T. Burnett, for *Anacardium Lewii*; to Mr. Turner, for *Primulas*, for *Ivies*, and for *Dracaenas*; to Mr. B. S. Williams, for *Solanums*, and for a collection of *Orchids*; to Mr. Wiggins, for *Primulas* and for *Cyclamens*; to Mr. Denning, for a group of *Orchids* and *Dendrobium plumosum*; and to Messrs. Dobson, for a collection of *Primulas*.

Mr. Locker, of Kingston-on-Thames, exhibited what he terms his patent cap-garden frames, ground vineries, and Fern cases. These essentially consist in two parallel rows of earthenware chairs or slabs placed at any convenient distance apart. On the top of these chairs rest sheets of glass in a sloping direction towards each other. A space is preserved between the upper edges of the glass, which is fitted with moveable earthenware caps, having grooves at the bottom. The top of the chairs or slabs is so constructed that the glass rests securely on them without any other support, and the frame or case is made thoroughly firm by the addition of the caps. Ventilation is obtained by removing any or all of the caps, which can be placed across the top of the glass. When bottom ventilation is required, spaces can be left between the chairs. The advantages claimed are, that while possessing all the uses of ordinary garden frames, hand-glasses, and *cloches*, the frames have the advantages of being more durable, promoting the healthier growth of plants, &c., being far more ornamental, and of being considerably less in price.

GENERAL MEETING.—W. Wilson Saunders, Esq., F.R.S., in the chair. After the awards of the Committees had been announced, the Chairman, in the absence of the Rev. M. J. Berkeley, mentioned the most prominent objects exhibited. As regards the Fruit Committee's province, he moved a vote of thanks to Mr. Fernyhough for his drawings of tropical fruits, and in the Floral Committee's department he took occasion to refer to the effect of grafting in producing variegation, as in *Abutilon Thompsoni*. Where the graft was green and the stock variegated, the result was that the whole of the leaves became variegated by degrees; where the stock was green and the graft variegated, precisely the same result occurred. Some specimens illustrative of this were shown by Messrs. Downie, Laird, & Laing. In this case variegation seemed to be the result of disease, but such was not always the cause of variegation.

The most remarkable of the *Orchids* were then pointed out, and it was mentioned that on this occasion, for the first time, *Stangeria paradoxa* was shown in flower, and that at first the plant had been mistaken for a Fern. The Chairman concluded by remarking on the utility of the *Ivies*, both for enlivening the garden in winter, and for screening arches in summer.

Major Trevor Clarke drew attention to the beautiful collection of *Cyclamens*, but he had found there was not a single fragrant flower among them, although the *Cyclamen* was naturally inclined to be fragrant. Fragrance was one of the highest attributes of a flower, and though florists pinned their faith to circularity of form he thought they should "go in" for fragrance as well.

The Chairman closed the proceedings by announcing that the next meeting, which would include the Hyacinth Show, would take place on March 16th.

On this occasion seventeen new members were elected, and the Council Room, large as it is, was crowded even to an inconvenient extent—both healthy signs that the Society is doing its work, and that that work is appreciated by gardeners and by garden-lovers as well.

## CULTIVATION OF ONIONS.

THIS being one of the most indispensable of crops the gardener has to produce, being in request almost every day throughout the year, I will describe a mode of cultivation I have adopted with uniform success for some years. The ground for Onions should be laid up in 2-feet ridges as early in autumn or winter as it can be cleared of other crops, and frequently turned over during frost. A dressing of soot or lime at that time will be of much service. At the end of February or the beginning of March, it should have a good dressing of rotten dung spread on and forked in not very deeply; this must be done during open dry weather. The ground will then be ready for sowing, which should take place about the middle of March if the weather is fine. Choose a dry day for sowing, put the seed intended to be used into saucers, and cover it with warm water; let it steep for two or three hours, during which time the ground should be trodden over from one end to the other, then cross-trodden, making it quite hard. Stir smooth it over with the back of a rake, stretch a line across on the surface, and sow the seed in drills, treading it as you go on. Let the drills be 9 inches apart. Sprinkle a little dry soil or fine ashes over the rows after sowing, and beat them with the back of a spade. By this mode beds and paths are dispensed with, the rows being a convenient distance for hoeing and weeding. A dusting of soot or guano during showery weather when growing, is a great assistance.

Since practising the above mode of cultivation, I have never missed having a good crop of fine sized Onions without a maggoty one amongst them.

After steeping, the water should be drained from the seeds, and a little red lead—just sufficient to colour them—mixed with them whilst wet; a little dry sand will make them part readily.

Last year I grew four kinds—namely, Danvers' Yellow, Brown Globe, Bedfordshire Champion, and Nuneham Park. Danvers' is a first-rate kind, coming in early, very regular in size, of good flavour, and keeping well. I have grown it four years, and like it better every year. Brown Globe is a very good kind; indeed there is little difference, that I see, between this and the Champion, the last-named being very thick-necked. Nuneham Park, after a three-years' trial, has proved worse than any other I have tried. The seed has been that from sealed packets, the Onions grown on the same ground, and they received similar treatment in every respect.—J. T. GREEN, Gardener to F. Sicanwick, Esq., Whittington House, Chesterfield.

## GARDENERS IN THE OLDEN TIME.

THE following may be interesting, as illustrative of the manners of the gardeners in the olden time. In 1345 (19 Edw. III.) "the gardeners of the earls, barons, and bishops, and of the citizens of the city of London," petitioned the mayor, John Hamond, that they might "stand in peace in the same place where they had been wont in times of old, in front of the church of St. Austin, at the side of the gate of St. Paul's Churchyard, there to sell the garden produce of their said masters, and make their profit." But the mayor, finding that "the scurrility, clamour, and nuisance of the gardeners and their servants there selling pods, Cherries, vegetables, and other wares to their trade pertaining daily, disturbed" the priests in the church of St. Austin, as well the reputable inhabitants, ordered that henceforth the gardeners "should have as their place, the space between the south gate of the churchyard of the said church and the garden wall of the Friars Preachers (Black Friars) at Baynard's Castle."

## THE LENTISCUS OF CICERO.

I am much obliged to you for your reply to my question on this subject, which I think contains the right clue to the explanation of the puzzling passage referred to. I really believe

that you understand the allusion better than Cicero did himself, who translated it from the works of a Greek poet named Aratus, a native of Tarsus in Cilicia, who lived *n.c.* 270. Aratus, in a poem called "Signs from Jupiter," says, "Now the Mastich (Schinus), is fertile three times, and even three growths of fruit are produced by it, and by each in due course it brings signs for ploughing; for they (the three growths) make a trifold division of the ploughing season, (marking) the middle of it and the two extremes." Cicero, in his poem called "Prognostica," translates these lines, not exactly as you quote them, but, according to the best authorities—

"Jam vero semper viridis, semperque gravata  
Lentius solita triplici grandescere fetu  
Ter fruges fundens, tria tempora monstrat arandi."

The passage occurs in "De Divinatione," lib. i., ch. ix.; and in the next line he adds, "Ne hoc quidem quaro, cur hæc arbor nna ter floreat, aut cur arandi maturitatem ad signum floris accomodet?"—"I do not ask even in this instance why this one tree flowers three times, or why it makes the right season for ploughing coincide with the sign given by its flower?"

I cannot help thinking that this addition shows that Cicero understood the words "flos," "fetus," "florere," "arare," in their usual acceptance. At the same time I think it very probable that the three gatherings of gum, which were probably always the same in the Mastich country of Chios, gave rise to the popular error of the three crops of flowers and fruit, and I feel much indebted to you for the information you have kindly supplied.—C. W. D.

It is quite evident from your second quotation from Cicero that he had mistaken Aratus; and Florinus, in the "Geoponika," does the same. They considered Aratus used the word *karpous* literally, and not metaphorically.—Ers.]

### THE FIG AND ITS CULTURE.—No. 2.

It is necessary, before proceeding to general cultural details, to take into consideration the nature of the plant, its characteristics, its peculiarities, or habits of growth, and its methods of fruit production, as thus I shall the more clearly make myself understood, and the more easily explain the reasons for the various practices I shall allude to.

**General Character.**—The Fig is a deciduous tree or shrub, frequently attaining the height of 50 or more feet. In the production of its fruit it is at once singular, and distinct from all the rest of our fruit trees. Instead of producing one crop only, it will bear two and even three crops in a single season. This peculiarity in its fruiting renders special systems of cultivation necessary, especially in regard to pruning.

**Production of the Fruit.**—The first crop of the fruit of a Fig tree is borne on the wood of the previous season's formation, as

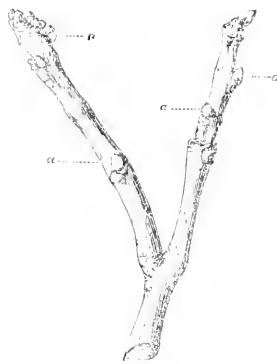


Fig. 7.

represented by fig. 7, the young embryo fruit being shown at *a*. That of the second and succeeding crop is produced in the axils of the leaves on the wood of the current season's formation, which will be represented hereafter. Fig. 8 represents the remnant of the last crop of fruit of the previous season, as they are to be seen frequently on the plants after the fall of the leaves in

autumn. These fruits are ignorantly believed by many to be those which form the first crop of the following year, and are jealously protected throughout the winter on that account. They are, however, merely late fruit of the past season which failed to arrive at maturity through want of heat or the conditions required for that end. These fruits are not worth consideration. A few may, under very favourable conditions, remain on and ripen, but very seldom.

Fig. 9 is a representation of a shoot having wood-buds only.

These three figures, then, represent the different characters of shoots with the position of the fruits, &c., as they are commonly to be met with on a Fig tree at rest during the winter time. Where the wood is well ripened and in its best conditions, as will be found with pot plants and trees in houses, shoots, as in fig. 7, will predominate. A little will, however, depend upon the varieties, and when the wood is badly ripened, as where the



Fig. 8.



Fig. 9.

shoots are crowded, those with wood-buds only, as in fig. 9, will be produced. It is necessary to fully understand the characters and the offices of each of these before attempting the office of pruner.

**PRUNING.**—It is an old saying, "that a pruned Fig tree never bears," which is to a certain extent true, but only with relation to the first crop, or with trees in the open air, or where sufficient heat is not available to ripen the second crop. This must be distinctly understood—that it is entirely owing to the want of heat if the second crop of fruit is not obtained, either in relation, in the first place, to immaturity of the wood which fails to produce fruit, or to the fruits being produced and failing to ripen, as shown by fig. 8. Knowing, then, whence and how the fruits are all produced we are enabled to prune with certainty for a required end. If we cut back the fruit-bearing shoots (fig. 7), we destroy the first crop of fruit, and if heat is wanting the second crop also, the shoots produced after pruning being very frequently of a watery and unfruitful character. Fig trees bearing shoots, as in figs. 8 and 9, may be pruned without any loss of crop. It is, however, clearly shown, that to prune a Fig tree to any extent is a distinct loss of fruit. As, however, the operation must at times be performed to keep the trees within form and limits, it is my duty to show how that can best be done at the least sacrifice, and this must be considered under various conditions.

1. Trees on walls and as standards in the open air, will, if pruned (by which is meant that particular shoot), through the want of heat or the shortness of the season, produce no fruit, so that, excepting in extreme cases, a portion only of the shoots should be cut back.

2. Trees planted out in houses, with or without heat, being generally inclined to vigour of growth, will, if pruned, produce gross shoots, and, consequently, but seldom produce fruits that season. In this case also partial pruning only is advisable.

3. Trees in pots having their roots entirely under the control

of the cultivator, and the wood being properly ripened will, if pruned, produce an abundant second crop.

In the 1st example it is the first crop of fruit only which can be depended on under any circumstances. In the 2nd example both the first and second crops may be secured if the trees are unpruned, but not otherwise. And in the 3rd example, with trees in pots, by non-pruning we secure the first crop, and by pruning, the second and frequently a third crop. Only with pot trees, then, can pruning be effected with a certainty of a crop the same season. If in this case, then, the first crop is desired, the shoots as in fig. 7, must not be cut, excepting just a few here and there to keep the plant in trim. All shoots, however, bearing only wood-buds, as in fig. 9, may be shortened back if necessary, with exactly the same result as to fruiting as if left unpruned. —A. B. C.

## PREPARING FOR EARLY POTATOES AND CUCUMBERS.

A FEW words on both these matters may be interesting just now, and more especially since many are anxious, but still very much afraid to try using the bulk of the dung in a comparatively fresh state, not greatly reduced in bulk by decomposing. First let me state that my box frames are shallow, say averaging 16 inches in depth at the back and 10 inches in front, and require, therefore, in general, to be set on the tops of the beds. For such crops as Cucumbers and Melons, though the soil of the bed should go against the back of the frame inside, after being firmly fixed against the front inside, it slopes down to give space for the foliage in front. These frames had been used for forwarding various crops all through the winter, with a little heat beneath from fermenting material. The box intended for Potatoes had been used for helping bulbs, Pinks, &c., and these were partly close to the glass, and there was a nice mild heat, chiefly obtained from rather fresh dung and a coating of tree leaves. Such a bed would have been of no use for Potatoes without much extra trouble afterwards. The box was therefore taken off, the bed forked over, so as to form an elevated ridge all round considerably the highest at the back, on which to set the box, so that when the soil was placed inside that would pretty well, except close at the back, be beneath the base of the box, and thus the Potatoes would perfect themselves with little or no raising of the box afterwards. There would be just enough of heat left in the bottom of the bed enclosed to heat the soil sufficiently for Potatoes. If there had not, I might have added a little fresh to revive it, but it was not needed. This is one advantage of using material not too much decomposed—that every time you use a fork in it you let in the air, and thus increase the heat gently. A barrowload inside will yield more heat than half a score outside in the way of lining.

There was more heat in the two boxes of two lights each intended for Cucumbers, but the beds were formed chiefly of green dung cased with tree leaves. The beds were too shallow to stand long if used for Cucumbers, and I had about two loads of litter and droppings (few of the latter) thrown into a heap and once turned, but owing to the weather it refused to heat so kindly, or become so decomposed, as I should have liked for the upper layers of a bed. I would not have minded if I had had leaves, but of these I had none at hand, and I did not like to wait, knowing that this dung, rather fresh and refusing to heat in the frosty weather, would heat fast enough when added to the old bed. The covering of leaves, some 8 inches thick, was carefully taken off, the bottom turned, the fresh material alluded to added, and the back kept well up. The bed of this rather fresh material was fully 4 feet high at back and nearly 3 feet in front, the back and front being formed into a ridge and covered with the sweet leaves, the inside being left like a trough in the centre some 18 inches deeper than the outside, and the whole bed being from 30 to 36 inches wider than the frame. The frame or box being set on, some boards were run along inside, back and front, leaving in the centre a trench of from 30 to 36 inches wide, and fully 15 inches deep. The space on each side of these boards back and front was filled up to the level of the boards with the sweet tree leaves. The boards, slabs, &c., were painted with quicklime as a precaution against fungi. The trench between them was filled up with soil, and when warm enough will receive the plants, and to make all look alike, the spaces at back and front will be ultimately covered with a couple of inches or so of soil.

The plan has grown upon me from a wish to save labour with linings, earthenings-up, &c. It takes a little more to make

such a wide bed at first, but as the materials are fresher nearly the half is saved, and the heat, on the whole, lasts longer. Last season the sides were not pulled down to make a lining to similar beds until September. In many seasons we never touch them at all, but protect them with a wattled hurdle, and to insure plenty of atmospheric heat merely keep the spaces outside banked-up to the top of the frame, for though wood is a bad conductor still it conducts heat, and when well warmed keeps it. Then, again, all the trouble and injury to the plants from frequent earthenings-up are avoided; and how often have smotherings, &c., been necessary, because it was required to earthen up the hills of Cucumbers in an unsuitable day, or with soil that chilled them. From the first planting I want no additions except, perhaps, a top-dressing in summer. I am well aware that the Cucumber plant when young delights in the vapour and ammonia proceeding from sweet fermenting material, and this the plants obtain from the sweet dung or leaves left at first uncovered at back and front, for at first these spaces are generally filled with pots with seeds, or pots with plants. Then, again, as it will be perceived that the soil is placed in a sunk trench in the middle of the bed, or rather nearer to the back than the front, there is rarely or never any danger of burning the soil or roots, matters which used to be of great concern; whilst, again, the soil and boards being bounded with a bank of fermenting material the roots are kept in a nice warm state. Lastly, though from such an arrangement, and the soil being sunk below the level of the frames, the shoots and leaves are allowed to extend from the middle to the back and front, the roots are chiefly confined to a width of from 30 to 36 inches, and a depth averaging 18 inches. I have long found that more Cucumbers may be thus out than if the roots had extended over the 6 feet in width. In fact, I have never cut more Cucumbers in a limited space than when I confined the roots in pots and boxes. Of course, there was more trouble in watering and top-dressing.

I have thus for once been rather egotistical, but I could not well attend to a number of inquiries without being so. I have no fault, quite the reverse, with well-sweetened manure, but everyone knows the sweetening greatly lessens its bulk, and I have merely stated how, in many ways, the heat given off in sweetening may be used. The great point is to prevent the rank steam getting among growing plants. Many a farmer might have numerous delicacies, if boxes required too much attention, merely by piling part of his farmyard manure around the sides of a close-walled brick pit, which would keep out all that was noxious, and let the heat in. From beds formed as above, and pits heated by hot water, and planted at a similar time with similar plants, there is generally a keen contest every year as to the early cutting of Cucumbers in spring.—R. F.

## TANKS VERSUS PIPES FOR BOTTOM HEAT.

I AM sure that Mr. Peach will not take it amiss when I say that I cannot agree with him that pipes are superior to tanks for bottom heat. I have tried several arrangements, and I believe that my present tank arrangement cannot be surpassed; it has been in constant use day and night for eight years, and appears as good as new.

It is made of thin boiler plate, and with the flow pipe that passes through it is heavily galvanised, after having been rivetted together. The cover is somewhat shorter than the tank to allow of the escape of moisture into the house, and in place of fitting on the tank, is made in the shape of a shallow tray to drop into the tank, so that it must always be somewhat immersed in the water. The plunging material is a coarse-woven fibre dust, and at first I found that the heat was completely checked by the dust becoming dry. In order to remedy this I covered the bottom of the tray with very old bricks laid flat, and placed the fibre on these inside the loose frames that I use for propagating; I then pour water into the tray to the depth of half an inch, and this is absorbed by the bricks, and effectually prevents any drying of the refuse. The heat is most genial, and of course the fibre remains sweet for an almost indefinite period.

It is amusing to notice how everything vegetable at once roots into the fibre. Any fragment of a *Begonia*, *Geum*, or *Gloxinia* leaf will make a plant. A cutting of *Cereus* Cactus, if laid on it, will throw out roots in about a fortnight, so that it can be lifted out of the fibre with a ball as large as a good-sized egg, and in fact it almost justifies my eulogium, when advising a friend to use it, that anything short of a broom handle would

strike in it! I wish Mr. Peach could try the plan on a small scale, as I am sure he would be satisfied with it, and might be the means of recommending it to many, who would pay that attention to his experienced advice which I fear they would not be inclined to give to the suggestions of an amateur. I may also say that it is very useful for sprouting seeds that would require soaking in tepid water, as it enables one to have the pleasure which is so much appreciated by children—that of digging up the seeds to see how they go on—only with this difference, that the young radicle is not injured, and when the growth is sufficiently advanced the whole can be transferred into suitable soil, and almost with a certainty of success.

I hope before long to try a tank on a very large scale to heat a Cucumber frame, and will not fail to let you know the result.  
—C. M. MASON, *Cromwell House, Croydon.*

#### THOMSON'S STYPTIC.

EXTENSIVELY as this antidote is used, and highly as it is esteemed by those who have tested its qualities as a preventive of bleeding in Vines, I am not sure that its sufficiency as a cure where obstinate cases of copious bleeding exist is so well understood.

The extraordinary amount of pressure accompanying the flow of sap in the Vine, and the unhappy consequences occurring from that sap getting egress, require no comment. The cases are too common, and make it all the more acceptable to know of a perfect remedy. This has induced me to offer a few remarks descriptive of my non-success, in the first instance, to suppress bleeding while adhering to or following the directions on the label on the bottle containing the styptic, and the success that attended the application in a different form. The experiments are as follow:—

Amongst a small assortment of Vines in pots, now in the forcing house here, a few bled severely from spur wounds, which were cut close to the main stems. These cuts, from some oversight, were not redressed with the styptic along with the others after being pruned, and as the Vines were by no means so well ripened as one could desire, the natural consequence was bleeding with the first flow of the sap. To arrest this, the styptic was resorted to; and after drying the wounds properly, laying on a coating as expertly as possible, I found the task hopeless. No amount of rubbing and daubing the styptic into the pores served to stifle the wound. A few moments and the sap accumulated beneath the covering, forming a head-like body, which burst again and again. I endeavoured by fresh applications of the remedy to attain my object, but as often was defeated. While musing on my lack of success the thought arose, What influence will fire have if applied? At once I had recourse to the flame of a candle, first placing it on the wound until the part when touched was so hot as almost to burn the hand. This had the effect of drying the wound perfectly, and forcing the sap back from the point acted upon. A pointed stick was next dipped into the bottle, and withdrawn loaded with the styptic, which was set fire to and applied to the wound while blazing, lissing, and boiling. The application of this fiery liquor was repeated over the part a few times until a body was formed over the wound, at which moment my wet thumb was pressed hard upon it, and held there until, when the heat was much diminished, it was withdrawn.

The result of the experiment was perfectly satisfactory. The styptic had in the course of a few moments acquired a consistency equal to sealing-wax, with an adhesion that resisted the excess of the sap effectually, and now those wounds, so detrimental to the growth of the wood, leaves, and fruit, are effectually cured.

It may, perhaps, be of interest to some to know that the styptic, applied in the usual manner as a preventive of bleeding, acts beneficially in arresting damping-off at the points, and "black rot" on the branches of *Ptelemydium* of all sections—a matter of no small consideration, especially when the latter unsightly malady manifests itself on the main stem of some dainty Tricolor. Many of this class of plants are very subject to this disease, more especially when they have had strong feeding in the previous summer—a condition which makes it more difficult to cure them, and the only effective method of treatment that I am conversant with is, on the earliest indication of spot on the stems—dull blotches or reticulations—to cut off the shoot or branch at the second joint below the affected part with a thin, sharp knife, dry the wound with a piece of cotton, and at once seal it up with the styptic. This com-

pleted, turn out the ball, and should any unhealthy roots be amongst the others, cut them clean back to their source, lessening the ball a third, and repotting in a smaller-sized pot in a poor, light mixture. Give no water though the leaves flag, and merely preserve the stems from shrinking from the lack of moisture at the root.

For simple cases, such as rot being communicated to a shoot by a decayed leaf, and which cannot be considered to arise from disease, the affected portion of the shoot ought to be very carefully scooped out without allowing the least vestige of discoloured tissue to remain, at the same time tying a thin splinter of wood behind the wound for support, and sealing the cut with a copious layer of the styptic after drying it properly.

Before proving the virtues of the styptic, or, indeed, knowing of its existence, I have often tried the effects of quicklime to remedy the same distemper, and sometimes with success. The mode of proceeding is nearly the same as that last described, with this addition, that after the diseased part is removed, and the stem secured to the wood, a wrapping of cotton rag is wound loosely round, and first tied at the bottom, after which a quantity of lime is filled in by the opening at top, and when the operator is satisfied that there is a sufficient coating of lime, the upper opening is tied also. The healing effect of quicklime may be attributed to the lime absorbing the moisture thrown off by the wound, and ultimately forming an incrustation, thereby, to a great extent, excluding the external air and damp, as well as accelerating the healing of the wound.—A. KERN.

#### ABOUT POTATOES.

I RECEIVED the following from Mr. Henry Taylor, of Fencote, Yorkshire:—"Last year I grafted twenty-four Potatoes, making twelve sets. From these I have some seed crossed to a certainty, but I cannot tell much about them until they are grown again. I shall see in the autumn whether there is anything good or not. Mr. Fern is greatly interested in Potato-grafting, and will ultimately convince people at Kensington that the grafting system is right. The Pebble White is the best of the sorts you sent me; I like it, and Napoleon, and Early Uprights. The Dunbar Regent, round white, is very fine; it is a good and heavy cropper, and the finest and most useful round Potato out. I planted ten tubers of Webb's Imperial, and only took up two tubers. It was annihilated by disease. Milky White is a shy cropper, and subject to disease. These would suit you:—Dunbar Regent: The Lawyer, raised by grafting a round red and a Lapstone; it is a handsome red or pink kidney, fine for exhibition in the red kidney class; and Fencote Exhibition Kidney, obtained by grafting, is a long smooth kidney, and ripens with Monks' Pride."

Such is Mr. Taylor's account. What will Mr. Dean say? If it be true that a Lapstone grafted with a red round has produced a red kidney, there must surely be some influence of the red Potato on the kidney, and *vice versa*.

I commenced Potato-planting January 24th. As a severe frost set in I covered the Potatoes with straw. Some for experience I left uncovered. I examined them on February 21st, and found them perfectly unharmed. I hear Potatoes in store have been much frosted about here. People must keep the air from them.

I sent Mr. H. Vilhoir on request Hero, Gryffe Castle, and Taylor's Hybrid, with seven other sorts. He wrote, "Hero is the finest thing of the sort I have ever seen. They (the whole) are fine indeed. I will test them with our best French varieties and report." I sent Mr. Turner Hero; he wrote, "It is a splendid sample."

Mr. Rivers says in the Journal of February 17th that I sent him Hero and Pebble White. This is a mistake. I sent him six tubers of the Bryanstone Kidney. It is a fine sort raised at Lord Portman's, and never sent out. The sample—a large hamperful—was the best sample of kidney Potatoes I ever saw. Finally, I took to Mr. Sturt's, who was entertaining a number of lords and ladies, the Cobler's Lapstone. Their admiration of it was unbounded. These Potatoes were at my request served up in their jackets. I also took Pebble White and Hero, which also brought the curtain down with applause. I quite concur in Mr. Rivers's remarks.

Finally, these Potatoes are in trial:—The Union and Transwell's, both white rounds, sent by Mr. Turner; Bryanstone Kidney; one tuber of a sort not named coming from Mr. Hooper, of Covent Garden, who wishes me to test it; and I

suppose Mr. Taylor will send the Dunbar Regent and the other two. My Potatoes are so good that I cannot see how they can be improved. By continually selecting seed of uniform shape I have my samples of Hero, Taylor's Hybrid, Pebble White, and Lapstone (which came in all forms when I first had them) perfectly uniform in shape. Never plant malformed seed. "*Similia similibus parantur*." I dislike the term "they will do for seed."—W. F. RACRYRE.

P.S.—Since writing the above I have received from Messrs. Hooper the tuber referred to. It is 1 lb. weight and very fine, a flattened oval, with eyes sufficiently prominent. It is called Monk, and evidently an American. I will do my best with it.

### THE ELMS OF OUR WOODLANDS.

In the near neighbourhood of London, north, east, south, and west, the English Elm (*Ulmus campestris*), abounds in every hedgerow bordering the market gardens and fields. The trees are for the most part ugly only because they are pruned so numerically, so that their umbrella-like heads seem to be stuck on bare poles. This variety of Elm bears seed rarely, but occasionally, if the trees be suffered to grow as nature dictates; still it is seldom or never perfect, and is sparingly produced, leading one to suppose that this variety is not indigenous, although by suckers from its roots it peoples every hedge if the soil be good. This variety must be the Elm of "Science Gossip," which in places where it suckers abundantly, "seldom shows any signs of fruiting at all;" but if detached trees are found growing near trees of *Ulmus glabra*, they often bear seed perfect enough to produce young trees.

In the country to the north-east, south-east, and east of London the Elms of our woodlands are of a different race. They commence to show themselves some ten or twelve miles from the city, often growing with the English Elm; in the east of Hertfordshire they abound in all the parks and hedgerows; also in the north of Essex and eastern Suffolk, nearly to the coast, the so-called English Elm (*Ulmus campestris*), being comparatively rare. This variety is the smooth-leaved Wych Elm of London, and is remarkable for bearing seeds in abundance in some seasons, so that the parks and fields are strewn with them, and the parts of the country in which the trees abound would, apparently, in a few years become forests of Elms; the young plants are, however, so delicate in their texture as to be greedily devoured by sheep, so that in parks like those of Pishobury and Gilston, both near this place (Sawbridgeworth), in which the trees are large and often bear from three to four bushels of seed, it is rare to find young seedling trees making their way.

This seed is very capricious, for in some seasons it is difficult to find a tree bearing perfect seeds, although the trees may be crowded with their Hop-like burden—for when strewn on the ground they are much like dried Hops. At other times trees may be found not so thickly crowded with seed, in which some thirty to fifty per cent. are perfect, and if sown within a few days after being gathered they vegetate quickly, and if the soil be rich they make young trees some 2 feet in height before October. The seed ripens in June.

I have always been inclined to hold that this is an indigenous Elm, the English Elm *par excellence*, and I used to have some pleasant disputes with dear old London—

"Alas! we never shall look upon his like again!"

And my strong ground of argument was its seed-bearing tendency, in contrast with *Ulmus campestris*, which is so loth to give seeds, and so unlike in that respect our native trees—the Ash, the Beech, the Oak, and many others; and I have always urged that hundreds of thousands of *Ulmus glabra* may be raised from seed without finding one like our dark-foliated, compact-growing tree, the English Elm, or even approaching it in habit. I say this from experience, for in years long passed some ten or twenty sacks of seed were sown here when a favorable Elm seed season occurred, which was and is about twice in five years, rarely more frequently.

The difference in the appearance of the Elms in Middlesex and those of Hertfordshire is most remarkable, even to the least observant; the former with leaves dense and dark, the latter with light green and often sparse foliage, and in many trees the twigs are graceful and pendulous. When the trees are old and inclined to bear seed freely, they are often ungainly objects, for if their blossoms are abundant, even if seed does not follow, the leaf-buds are destroyed, and others remain bare of foliage till the middle of July; so that in the hedgerow of my neigh-

bour, where there are some trees of the English Elm growing near those of *Ulmus glabra*, the smooth-leaved Wych Elm—or as it is called here, the Hertfordshire Elm—it looks strange to see in June the English Elm (*Ulmus campestris*), in its full summer foliage, while its near neighbours, the Hertfordshire Elms, are as bare of leaves as at Christmas. To this species (*Ulmus glabra*), we owe most of our numerous varieties of Elms, from *Ulmus microphylla* to the Huntingdon Elm, with its large leaves and vigorous growth.

Anyone travelling from Danks to Lisle by the old diligence road, would feel interested in the Elms, their stems are so smooth and so light in colour, and their leaves large and of a pale green. They are everywhere—in the hedgerows, in coppices, and in detached groups. By those who know Elms they will be recognised as the variety called in England the Huntingdon Elm, growing with great luxuriance in the rich, deep alluvial soil. It is quite probable that this variety was brought over by the Earl of Sandwich about the middle of the last century, and the trees planted in his park, near Huntingdon, hence its English origin. The same variety may be seen in Bosky Park, where there are avenues of it leading from the northern entrance. Were they imported by "Dutch William?" *Ulmus americana* has a strong resemblance to *Ulmus glabra*; its leaves are of the same light green, and it bears seed freely. It is usually more pendulous than the generality of our smooth-leaved Wych Elms, but its resemblance to them is very striking.

The Scotch Elm (*Ulmus montana*), is a species, if such a thing as a species exists, for although millions of this tree are raised from seed annually, no such variation in habit is ever found as with *Ulmus glabra*. It is true that we have pendulous trees of this sort, and also upright varieties, but there is, as far as I have seen, no material variation, as they all have those rough, large, hairy, dark green leaves, so characteristic of the sort. Why seedlings raised from this Elm should be so constant in their characters, while those of *Ulmus glabra*, which seems to be equally indigenous to the eastern parts of England, should vary to the extent they do is a mystery, for in a thousand seedlings of *Ulmus glabra* no two trees can be found alike. Some have very small leaves, some cork-like bark, some are pendulous, and others scrubby and dwarf in habit. We do not find this variation in other seedling forest trees, the Beech and the Ash but rarely vary; and so, perhaps, as some authority, I think, has asserted, there is but one well-defined species of Elm in the northern hemisphere—the *Ulmus montana*, and that all our numerous species (so-called) and varieties have in the course of ages and changes in site and climate been originated from it. The question is full of interest.

Since writing the above some remarkable specimens of *Ulmus glabra* growing in the park at Pishobury, opposite to my residence, came to my recollection. They were planted at the end of the seventeenth century or very early in the last, and form a portion of a grand avenue. This park, although not extensive, once possessed four avenues—one of *Ulmus glabra*, one of Oaks now seven centuries old, one of Limes, and one of *Ulmus campestris*, the latter two planted at the same period as that of *Ulmus glabra*. About the year 1780 that avenue-destroyer "Capability Brown," then in great fashion, was called in to improve the park. His improvement, as usual with him, consisted in destroying three of the avenues, forming the trees into clumps, planting clumps of mixed trees in the park, and making a belt nearly round it. An idea occurred to me that these old specimens of *Ulmus glabra* much resembled in their habit the Scotch Elm, *Ulmus montana*; and so to-day I refreshed my memory by a close examination of them, and I found them, as compared with *Ulmus campestris*, to be of less altitude, and inclined to throw out horizontal arms of enormous size, near the ground; one, in bulk a good-sized tree, only 7 feet from the ground, measuring 45 feet from the bole. In appearance they much resemble the Scotch Elm, which in this part of the country is a spreading tree rarely attaining any considerable height. The young shoots of this kind of *Ulmus glabra* have a reddish tinge, thus differing from those of the Scotch Elm, which are grey. The most remarkable characteristic is, however, its foliage, which is equal in volume to that of the Scotch Elm, but perfectly glabrous. This sort bears seeds in abundance. The trees are now loaded with blossom buds.

It is, however, curious to note that seedlings raised from these very old trees do not reproduce the variety, but at once diverge into varieties with comparatively narrow leaves, and in habit exactly resemble our common hedge Elms, the Smooth-leaved Wych. These old and very remarkable Elms lead one

to Darwinism, for it would seem as if they are but a very early remove from *Cistus montanus*, which after all, I believe, the parent of all our Elms, although many of them, like "*Ulmus cornubiensis*," are as far removed from it as the pouter from the rock pigeon. —Tuos. Rivers.

Your correspondent "G. N.," in his note upon this subject, has fallen into one or two errors which I shall be glad if you will allow me to correct. No "argument" on the matter of the Elm producing seed has appeared in "Science Gossip." Mrs. Watney spoke of it as occurring with its "foliage and fruit in perfection," at a time when Foxgloves and other summer flowers were in blossom; and Mr. Holland corrected her by drawing attention to the fact, that "the membranous seeds usually drop off and strew the ground just about the time that the leaves are opening—that is, in April or May." Why may I name twice figures in "G. N.'s" notice I am at a loss to imagine, as I have not written in "Science Gossip," or elsewhere, a single word on the subject, and on carefully reading Mr. Holland's note, I am unable to find the sentence which "G. N." places in inverted commas—and very seldom show any signs of fruiting at all." He says, "The fruit seldom, if ever, does come to perfection in this country;" and that he has never seen it "in perfection," but the remark which "G. N." would lead us to suppose is a quotation, does not appear in Mr. Holland's note. The questions at issue are simply these:—1st. Is the Elm "in perfection" of "foliage and fruit" at the same time? 2nd. Is that time the month of June, or thereabouts?—JAMES BRITTON, *Royal Herbarium, Kew.*

## PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

*MONOLENA PRIMUMFLORA* (Primrose-flowered Monolena). *Nat. ord.*, Melastomaceae. *Limn.*, Decandria Monogynia.—In gardens this beautiful stove plant is usually called *Bertolonia primuliflora*. It is a native of New Grenada. Flowers pink; under side of leaves plum-coloured. —(*Bot. Mag.*, t. 5318.)

*DELPHINIUM NUDICALE* (Naked-stemmed Larkspur). *Nat. ord.*, Ranunculaceae. *Limn.*, Polyandria Trigynia.—Hardy perennial. Native of California. Introduced by Mr. Thompson, of Ipswich. Flowers scarlet and yellow. —(*Ibid.*, t. 5819.)

*HOYA AUSTRALES* (Australian Hoya). *Nat. ord.*, Apocynaceae. *Limn.*, Gynandria Pentandria.—Introduced by Messrs. Backhouse. Flowers white. —(*Ibid.*, t. 5320.)

*CERCURA PETIOLATA* (Long-petioled Curcuma). *Nat. ord.*, Scitamineae. *Limn.*, Monandria Monogynia.—Native of the Pegu and Martaban forests. Flowers yellowish green, lip pink. —(*Ibid.*, t. 5821.)

*ENKYANTHUS JAPONICUS* (Japanese Enkyaanthus). *Nat. ord.*, Ericaceae. *Limn.*, Decandria Monogynia.—Introduced by Messrs. Standish, from Japan. Flowers white; but most beautiful in autumn, when its leaves become bright orange. —(*Ibid.*, t. 5822.)

*SOLANUM VENUSTUM* (Graceful Solanum). *Nat. ord.*, Solanaceae. *Limn.*, Pentandria Monogynia.—A slender stove climber, probably a native of southern Brazil. Flowers pale lilac, in long drooping panicles. —(*Ibid.*, t. 5823.)

*ONCIDIUM VARICOSUM* var. ROGERSTII.—"Few species of the grand genus *Oncidium* have yet been met with of a more showy and ornamental character than that which we now figure, from a fine specimen which bloomed last autumn in the collection of the Messrs. Veitch & Sons, of Chelsea. The flowers, indeed, are quite equal in size and beauty to those of *O. Marshallianum* and *O. pectorale*, while in brilliancy of colour they far surpass those of *O. macranthum*. The plant was introduced into this country by Dr. Rogers, of East Grinstead, after whom it has been named; and was exhibited by him for the first time when just going out of flower in November, 1865. Both *O. varicosum* and the variety under notice are natives of Brazil, the latter differing from the former chiefly in the larger size of its flowers, and in the fewer crests developed on the disk. It is one of the more ornamental of its race, and all the more valuable for its habit of flowering during the late autumnal months.

"The habit of the plant resembles that of *O. bifolium*. The pseudobulbs are of a long ovate form, and somewhat compressed and ribbed; they support a pair of ligulate-lanceolate acute leaves, while from their base proceeds an ample branched nodding panicle of large yellow flowers. The sepals and petals are quite small, pale greenish-yellow, marked with brown bars. The lip is large, much crested at the base, where it is mottled with reddish brown; it is furnished with rounded basal lobes,

and has a large reniform middle lobe, which is upwards of 2 inches across, divided into four lobes, and of the purest and brightest yellow. The panicles attain about a couple of feet in length, are much branched, and bear sometimes as many as 170 flowers. Like *O. varicosum* itself, this is one of the finest *Oncidia* we have in cultivation. In gardens it bears the name of *Oncidium Rogerstii*, but Professor Reichenbach is, no doubt, quite correct in referring it to *O. varicosum*, the four-lobed front portion of the lip affording an unmistakable characteristic.

"Being a native of Brazil, it should be cultivated in the Cattleya house; it grows freely when suspended in a basket near the roof; and sphagnum, peat, and charcoal form a suitable compost for it."—(*Florist and Pomologist*, 3. s., iii., 25.)

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

ATTEND to the due preparation of the ground to be used for the main crops of vegetables. Give all *Asparagus* beds a slight salting; this should be done after soiling; the rains will carry the salt down. In dry weather let the Carrot and other ground which has been ridged-up all the winter, be levelled ready for sowing. Let the time be ruled more by the state of the soil than by the day of the month. About the second week in March is an excellent time to sow the main crop of *Onions*. The ground being prepared, it is marked out into beds 42 inches wide, with 15-inch alleys. Before the seed is sown, the beds are raised by soil from the alleys 9 inches above the ordinary ground level. When they have become very dry indeed, the seed is sown and trodden twice over by the feet until the beds appear as hard as the gravel walk. A very thin coating of soil is then strewn evenly over the whole, and finally the roller is passed over the bed. When the *Onions* are fairly up, they are weeded at two different operations, not a weed being left at the last one, and they are thinned out also at two distinct periods, leaving them finally about 3 or 4 inches apart. The hoe is never used, as hoeing, by loosening the surface, exposes the *Onions* to every storm, and if luxuriant throws them prostrate on the surface. The narrowness of the beds enable the operator to weed clean with facility, and without injuring the plants. Sowings on well-studded beds may be made of *Green Kale*, *Savoy*, *Brussels Sprouts*, *Chou de Milan*, *Broccoli*, *early Cabbages*, a small quantity of *Cauliflowers*, *Leeks*, and early *Dutch Turnips*. Make frequent sowings of *Lettuces*, *Radishes*, *Horn Carrots*, and *Mustard and Cress*. It is a good rule to sow successions of these when the last sowing is fairly above ground. Cover with litter in frosty weather all early slopes of *Radishes*, *Lettuces*, and early *Peas*. The last-named should be staked and well attended to. Fir or Yew branches put on the outside of the stakes will shelter them from withering winds, which are more to be dreaded than frost. Sow more *Broad Beans*, and a succession of *Peas*; there are no varieties better adapted for general purposes than *Blue Prussian*, and *Knights Dwarf Marrow Peas*. It is an excellent plan to sow them widely apart, with other vegetables between.

### FRUIT GARDEN.

Bring pruning to a close immediately; root-prune over-luxuriant trees, allowing about a foot to every inch of diameter at the base of the trunk—that is to say, for a tree of 4 inches in diameter open a trench 4 feet off, and so on. Cover *Apricots* and *Peaches* forthwith. Uncover *Fig* trees, but do not prune them until they begin to swell. Prune and nail *Vines* without delay, stopping the fresh cuts with white lead.

### FLOWER GARDEN.

All grass lawns should now have a thorough rolling, and all tarring repairs must be completed. Where it is absolutely necessary to edge lines of walks let it be done now, and as soon as accomplished run the heavy roller several times up and down the edge to soften the cut line. All edgings should, if possible, have a slight inclination towards the walk, and they should only be fresh cut in consequence of irregularities in the line. Highly-kept lawns should have a slight mowing just after rolling. The coverings must be removed forthwith from all half-hardy plants, climbers, *Roses*, &c.; also, all coverings of sawdust and heavy mulching from *Fuchsias* and other tender plants. Do not remove the latter entirely; leave a little to protect the half-blanching buds. If the *Auriculas* are not already top-dressed it should immediately be done; care, however, must be taken not to injure the surface roots when removing the soil. Though most florists are conversant with the operation, still to the amateur (for whom these cheer-

variations are particularly made), a short description may be acceptable. With a blunt stick carefully loosen the soil to about the depth of three-quarters of an inch, avoiding any injury to the collar of the plant. Having removed this, replace it with some compost of perfectly decomposed cow manure or horse manure, mixed with leaf soil. No soil should be allowed to drop between the leaves. After having filled the pots to the required height, give the plants a slight watering to settle the soil, and place them in their situation for blooming. Cover the Tolly beds with large-meshed nets; when too small the plants are apt to be drawn, which should be avoided. Beds of Pansies are best made in the autumn, but where plants have been kept in pots during the winter months, they may now be planted with their bulbs entire on richly-prepared beds. Pinks ought now to be carefully gone over, the surface soil slightly forked over, and a top-dressing similar in its composition as that above recommended for Auriculas should be put over the bed to the depth of half an inch.

#### GREENHOUSE AND CONSERVATORY.

Poinsettias done flowering should be removed to other houses at work, to make new wood from which cuttings may be struck. The *Euphorbia jacquand-dora*, too, may be removed to heat, but not pruned, if cuttings be an object; they will break better without pruning, being liable to bleed. The routine in the conservatory will now be a constant exchange with the other houses or forcing pit; nothing should be allowed to remain unless in blossom, or in fine health. Let the heat be moderate; secure, if possible, a small amount of atmospheric moisture without drip. Those who follow up the cultivation of Pelargoniums in the mixed greenhouse, should have their plants duly attended to in regard to staking out, &c. They will bear shifting the moment the blossom bud is formed in the terminal point. Water very moderately after shifting, while the pot is half full of roots; those not yet shifted will now take water freely. Tender annuals, as Balsams, Cockscombs, &c., should now be sown; they will come up better, however, in a frame with a slight heat. Make all the cuttings possible of choice *Verbena*, *Fuchsias*, *Petunias*, and other popular and gay flowers. This is a good time to start *Leschenaultias* of kinds, giving them a liberal shift into decayed turfy peat and sand, to which, if it is not rich, some good leaf mould may be added. *Boragins* delight in a similar soil. Keep the house close for a week or two until the plants indicate new growth, and then the air must be admitted more freely.

#### STOVE.

Push forward *Clorodendrons*, *Stephanotis*, and *Allamandas*, as briskly as possible, but do not be in a hurry to train them. Pot-off *Acichimenes*, and any seedling plants which are sufficiently large, and start a fresh lot of *Acichimenes*, *Gloxinias*, &c., to form the second succession. Stimulate the young growing plants as much as possible, consistently with the state of the weather, and while you give plenty of air, at all times guard against sudden changes and cold cutting winds. Orchids will now be budding fast. Beware of drip lodging in the young buds; when suspicion exists as to danger in this respect, it is sometimes well to remove some of the old coating which surrounds the bud, by which means a free circulation of air is established. The fires should be kept sufficiently lively in the early part of the day, to allow of a free circulation of air; every leaf in the house should be dry for an hour or so at mid-day, after which period the air should be gradually withdrawn, and atmospheric moisture renewed. This treatment will be found to suit the majority of stove plants, as well as Orchids.

#### FORCING PIT.

Introduce fresh plants for succession as fast as others are removed to the conservatory. Pinks which have trussed up will be better in a milder heat, and Lily of the Valley should be removed to a lower temperature as soon as the first flowers are open. Keep a brisk growing temperature, with plenty of air and moisture in clear weather, and avoid crowding your plants.

#### COLD PLANT PITS.

*Fuchsias*, *Calceolarias*, *Petunias*, *Verbenas*, &c., intended for an early display, should be removed from hence to a warmer atmosphere, and liberally watered, shifting those which require it. — W. KEANE.

#### DOINGS OF THE LAST WEEK.

*Protection*.—We have alluded to this lately, and now again to protect the timid. In the severe weather we did not uncover *Calceolarias* for a week, and they looked as green as if

they had been deprived of light for only a dozen hours. It was the same with *Camellias*, *Potatoes* which had only a little heat below them were covered up during the four coldest days. Young *Cucumbers*, where a good heat could be given, were covered up in two of the darkest snowy days—that is, forty-eight hours, or, perhaps, nearer sixty hours in all. In their case we should have expected a yellow tinge in the foliage if we had kept them covered up longer. Even as it was, it would have been well if the glass had been half exposed each of the cold, dark days. With heat to encourage extension, we should expect weakly growth if the plants did not have light, but on those two days the light was hardly equal to an ordinary twilight. The wind, too, was very trying, and as the covering was properly secured we knew there would be a difficulty in putting it well on again. In such a case we allowed the thermometer to fall several degrees lower than we would have done in light. We mention these facts, as some of our readers are quite unphased about the time that protection or covering may remain over glass in severe weather. The plants will be safe when thus covered up from the light, just in proportion as, from cold, they have no stimulus to grow or elongate. Even in the case of a *Cucumber* plant with a suitable high temperature, it may be often wise to keep the glass protected in a dark stormy, very cold day, instead of exposing all the glass; but this should not be done often, as for consolidating growth light must ever be proportioned to heat.

On uncovering we found nothing injured, except a few young bedding *Pelargoniums* at one corner of a frame for a space of about 15 square inches. The back had here swelled out from the ends, leaving a short opening about 1 inch wide, and at that opening the frosty air had entered. There was a slight heat from the old bed, otherwise the frost would have extended farther, thus showing the importance of attending to the outside of pits and frames in severe frosts, as well as covering the glass.

When half-hardy plants have been long covered up it is as well not to expose them at once to direct sunshine, but to give full light by degrees. This is still more necessary if the plants are at all frosted. In this case it is well to let all the covering thaw before removing it, thus allowing the plants inside to recover in partial shade before being exposed to the light. We once had a frame of young *Calceolarias*, standing 1½ inch apart, that had their foliage stiff, and the soil crusted. They were kept covered two days after the thaw, and twelve hours after it set in they were syringed with cold water, and did not have full light for three or four days. Not one was eventually injured, and no plants could have succeeded better than they did; but still we would rather let them get near the freezing-point without being frozen.

Have our readers thought and wondered over the penetrating powers of a mild balmy air, when a rapid thaw succeeds a severe frost? Frost is a terrible tyrant, but the thaw is a more powerful king. We stop not now to dwell upon the causes, but such facts as the following may be observed every winter as to the power and rapidity of action of warm as contrasted with cold air. Let us take just one illustrative instance. Here is a cold pit that, as the frost is likely to continue, we wish to be safe with little trouble. We allow the place to get so cool that one-half or more of the glass becomes crusted with the frost before we cover it up. However keen the air, a thin layer of litter will prevent the rest of the glass being crusted over. If the frost become still more intense, a little more litter added, or even the shaking and turning of the litter there, will baffle its efforts to reach and freeze the glass still untouched, except in keen winds; even then a slight covering does much to baffle it, as the frost seems obliged to do its work very gradually, and along the straight lines of conduction and radiation, and whenever these lines are broken the frost has to begin its work again at the surface. When there is a gentle thaw, with the air at from 35° to 40°, how quickly will the glass that was frosted be thawed beneath all the covering, and how soon, too, that covering, though bare a few hours before, will become soft and limp! We may manage to keep out frost; we are next to powerless to keep out warmth; we can only moderate it by shade, and using non-radiating, nonconducting materials. We might illustrate this by facts of everyday life, but we shall merely allude to one instance in connection with our subject that impressed us much at the time—years ago. We had covered up a cold pit with litter. The frost so increased in severity that we thought of adding more litter, but a sudden fall of snow of some 3 inches in depth saved us all trouble in this direction, and the pit was

so covered for a fortnight more. The thaw set in with a slight drizzle, which consolidated rather than melted the snow. The warmer air had but little effect on the surface of this glass-like ice snow, but in a very short time, though not averaging above 38°, it penetrated to the whole of the covering and glass beneath the snow, and melted the snow itself from beneath, leaving a cake of ice on the surface for days after the thaw had obtained the mastery beneath it. This was just one instance out of many that warm air will find its way where cold air could be kept out.

**Pits and Frames.**—We would like to say a few words to several correspondents who want a little advice about pits and frames, that they may be able to act on it this month.

"A" is to make a brick pit, 6 feet wide, 4 feet deep at back, and 3½ feet in front, half of the height to be under the ground level. He wishes to grow Cucumbers and Melons in summer, with a little dung for bottom heat, no other heat, and keep bedding plants above the old bed in winter. For summer work there will not be room for more than 2 feet of dung on the level, and it would be of little use turning out the plants before the end of May, even though the glass was covered at night. We have kept plants in such a bed with protection in winter, but it is peculiarly liable to damp. It would be much better, in building the pit, to leave a ledge of brick—say 2 inches wide, all round inside at 2½ feet from the bottom, so that you could lay boards across from side to side for receiving all the dwarf plants after the soil and dung were removed. With careful watering, plants could be better kept on the boards with air beneath them, than set on ashes, &c., on the top of the soil of a bed.

In answer to "B," we would say that going down to secure warmth where no artificial heat is given is generally a mistake, as, though more warmth is thus secured, there is more liability to damping and the spread of fungus in winter.

"C" says he can have a pit 2 feet above the ground at the back and 11 inches in front; width not much more than 5 feet. He only wants to keep cuttings and low and small plants, and wishes to know how much he should sink. We say none at all. We would make the inside as hard as we could with concrete, and would like to finish with a washing of cement to keep damp from rising, and the inside surface we should prefer to be 2 or 3 inches above the surrounding level. We would have a small hole in the wall at every 2 or 3 feet to let moisture out, especially in summer, for with careful watering there would be none to come out in winter.

"D" is in great straits because he can obtain no bricks, but he can have Larch or Scotch Fir boards 2 inches thick if he will have them sawn. Well, we would not grumble in such a case. If well, or even if roughly put together, the boards would be as serviceable as a brick pit, and the putter of them up would have to live long to see the end of them. In such a case we would have a raised platform of concrete, with the ground sloping from it on both sides, and we would give the bottom of the boards resting on the concrete a good coat of pitch. If we did not pitch we would anticorrosion-paint the inside when well seasoned; and if we did not wish to use the place for some months in summer we would tar the outside when well seasoned, but by no means when the wood was green. We should feel ourselves as secure with these boards as with a brick wall. We met once with a case where there were plenty of thinnings of young Larch trees, and where even sawing might be an object. These young trees, about 3½ inches in diameter, were cut into the requisite lengths, a small trench taken out, the pieces put in wide end and narrow end alternately, and a somewhat thick rail put along the top for a wall plate; the plan answered very well as a neat makeshift, and admirably for hardening-off bedding plants in spring. The Larch thinnings would have lasted better and looked better if peeled. A double row of such stakes, with moss and sawdust stuffed between them, would make a good pit where it would not be worth while to use the thinnings for rails or small props.

"E" finds he cannot have paint, finds his plants damp much in his pits and frames, and wishes to know if he could not use tar for paint inside and on the ground, to keep the damp from rising. No, not by any means inside of a place where plants are kept until every scent of the tar has gone. Did we intend to have a frame or a pit above ground next autumn, then we would have no hesitation in making a raised platform now some inches above the surrounding level, and making the ascent of moisture next to impossible by a coating of tar and gravel, as, if that stood exposed during summer, it would be deprived of its noxious taint before being wanted in

winter, and the same might be said as to painting with tar inside. But even as respects the latter we have some doubt, as when heat is applied, as even a strong heat from the sun, it is long before tar becomes insensible to it. We should have no hesitation in using pitch, as that is comparatively inodorous. With boards well seasoned, lime-wash coloured to suit, tends to preserve them. Bear in mind, however, that everything you coat a board with, if the board is not dry and seasoned, will only hasten its decay. We once noticed a lot of gates made at the same time, and of similar material. Some were never painted, and could sport a few lichens as drapery in fifteen years, but beneath the mossy exterior were quite sound, whilst many of those painted at once when green were rotten before they were twelve years old.

"F." is in great perplexity whether to have a pit or a small lean-to house, as he has a wall 10 feet high. Why should he be perplexed? A lean-to house under such circumstances, with a fixed roof, would cost much less than a pit with moveable sashes, and then with a little store of brick or iron, he can keep out frost and damp without mats or litter, and whenever disposed, and especially in bad weather, he can walk inside and give what treatment is necessary to his favorites. The very quantity of air contained in, and light admitted into such a house, renders the management easier and more agreeable. See answers to correspondents, pages 113 and 114.

#### FRUIT GARDEN.

Proceeded with pruning, and in the case of bush trees, whitening after pruning, the birds going more to a pruned tree than an unpruned one. We are just waiting for an opportunity of fresh surfacing and watering orchard house trees, at least partially, but we should like the water to be a little warmer. We have had a few fine days for Peaches, and Strawberry plants in bloom, or coming in. We have had only one drawback as respects Strawberries this season as yet, and that is the number of plants that have had their crowns nipped out by mice, and especially grass mice, which are becoming alarmingly abundant. No bait or trap seems to be of any use, and they seem to care nothing for green food when laid down for them. Small snares in their runs might answer, but snares, though small, would be objectionable. Where they become so numerous as to be troublesome in pleasure grounds, we have little faith in getting rid of them except by encouraging some colonies of owls, as their natural enemies, or allowing cats to have unmolested nocturnal rambles. The number of mice that a few barn owls will nip up would never be believed by any who had not examined their nests, &c., but a score of Watertons, however versed in the natural history of the owl, would never convince a gamekeeper that the owl was not one of his worst enemies, and therefore to be destroyed without mercy. It is true that our boyish recollections force us to own that at times the owl will pounce on a young bird, but these the gamekeeper cares about, are generally when small under the protection of the parent bird at night, and it is rarely that the owl goes abroad during the day, while there can be no doubt that mice, when to be had, form the bulk of his food. We could not say as much for cats at large. If any of our numerous readers can tell how to get rid of these grass mice, he will confer a great benefit on many.

#### ORNAMENTAL DEPARTMENT.

We have suffered also in this department. The Czar and the Neapolitan Violet under glass have been monopolised by the teeth of mice. Scarcely a flower-bud of any size has been left; and though blooms have been dissected, and spread all over the ground, little if anything of the buds seems to have been eaten, so that the destruction has been for mischief, unless the mice obtain something sweet in the scent. They seem to get in when the places are open, and take themselves off, or hide themselves, when they do the mischief. In this case we mean to water with something unpleasant, even though the aroma of the flowers should suffer at first in consequence.

Tulips coming through the ground need protection from cold searching winds, and the spring planting of Ranunculuses and Anemones should be proceeded with as soon as the weather will permit. Pinks and Carnations need looking over; our greatest enemies are mice. For Calceolarias, &c., in cold pits, give all the air possible now to keep them sturdy. Watering must be carefully given to all plants where no artificial heat is afforded. We are delaying thinning bedding plants, as at present we are so scarce of room. In a week or two we may expect more settled weather, and then orchard houses and earth pits must come in as our helps. We potted what we could of Pelargoniums, &c., and commenced with Fuchsias, in the

case of old plants shaking all the earth from the roots and soaking them in clean water a few minutes before repotting. This cleans the roots, and prevents the necessity of much watering at first. We have commenced overhauling Ferns, using for all potting purposes soil that is well aired, and warmed in sheds where there are stoveholes. Many plants suffer from being potted in cold soil. All watering, even in greenhouses, should be done with water slightly warmed—say nearly 60°. In stove houses the water should be from 75° to 80°. More air may now be given to the conservatory and greenhouse, and especially at the top. Blooming Epacris, Heaths, &c., and even bulbs, should not have direct front air on them in cold days.

We find that the great fault of common waterers is, that they send the water too much to the centre of the pot, instead of allowing it to percolate through from the outside of the ball. This injures many hardwooded plants, as Epacris and Heaths, as the collars of the plants are injured by the damp, and many a fine plant of single and double Primula has thus been irretrievably injured in dull, damp weather. When the collar of the plant is wetted and kept wet in dull weather, rotteness and gangrene are almost sure to ensue. A lady used to heat us with Chinese Primulas in her windows. They were gems to attract every passer-by. She used to laugh and tell us she acted on the advice we gave, which it seems we could not act on ourselves—namely, to sail the outside of the ball all round, so as to moisten the roots, but to leave the collar of the plant dry. The same rule holds good as respects early Strawberries in pots. Watering overhead in dull weather often rots the flower-bud, and destroys the flower-stem.

As the sun gains strength, we gave weak manure water to *Camellias* and *Azaleas*, and as respects the first nearly finished blooming, we shall move them where their growth can be encouraged. The only secret for having *Camellias* early in winter is not to force them, but rather to let them come in in a rather low temperature, but to help growth and the early setting of the buds in spring and early in summer. Thus treated nothing is so obedient to the wish of the gardener as the *Camellia*. We may say almost as much of the beautiful varieties of the Indian *Azalea*, only they will stand a little forcing; but they will only do this when growth and bud-setting are accomplished early. We have known cases in which gardeners with their one greenhouse, or the help of a little pit, were blamed because they could not equal the splendid *Azaleas* exhibited early by Messrs. Veitch and Mr. Turner, but it would never pay to show such plants, except for the orders they help to bring. The secret of this early blooming is just this, clearing the plants of their blooms as soon as possible, and placing them in a light house where growth may be encouraged quickly by giving them the heat and atmospheric moisture that would suit a house of Orchids, and giving more air and dryness of atmosphere when it is desirable to set the buds. The gentleman who cannot afford or give similar means, must not expect similar results. In this respect the *Camellia* is more under command. A man with one house, by keeping his plants at one end, by damping, syringing, and little air, may insure early growth, and this is the first essential to early blooming. Could we have our way, either with plants in pots or planted out in houses, we feel we should have little difficulty with *Camellias*, and where there are ladies to please, what is more useful in winter and spring? Even in a single house, and with Vines on the rafters, what a fund of enjoyment may be realised even from a few plants in winter and spring, such as *Camellias*, *Epacris*, *Cytisuses*, *Daphnes*, *Primulas*, *Cinerarias*, and *Violets*.

We have been putting in a good many cuttings, and everything strikes best now in a little bottom heat. If under glasses, or such little boxes, covered with a square of glass, as lately described, all the more readily will the cuttings strike if rightly attended to; but much of our propagating is done in the open bed under glass, and so long as a distance of 18 inches or so from the glass, and a slight skiff from the syringe, keep them from flagging we do not shade, as all shading tends to elongate the cutting without hastening its rooting. By covering with glass you may have the rooting in half the time, but the plants thus obtained want more hardening off afterwards. The great secret of striking quickly is never to let the cutting feel more than is absolutely necessary the check of its severance from the mother plant. Hence, except in special cases, no cutting if it can be avoided should ever flag, either before or after being inserted. A moist atmosphere or a dewing from the syringe will often prevent that and render shading unnecessary.

We have sown many flower seeds intended for the flower garden—as *Lobelia*, *Perilla*, &c.; and for pot plants, as common *Cockscomb*, feathered *Cockscomb*, &c. All these will be benefited by bottom heat. The soil in all cases should be sweet and well exposed to the air. The only thing particular is to have the soil fine and moist for all dust-like seeds as of *Lobelia*, *Calceolaria*, &c.; give merely a sprinkling of fine sand, press down, cover the pot with a square of glass, and shade. We often dispense with the glass, place the pots close together, and cover with a double thickness of newspaper before the seedlings make their appearance. We do not now state how the pots should be prepared, cleaned, moistened, drained, supplied with soil from rough to very fine, as that has frequently been done, but we would merely remark, that if these matters are attended to, we should never hear the twentieth part of the blame that is thrown on nurserymen for sending out bad seeds. Unfortunately the habit, though a bad one, is easily learned of trying to throw the blame from ourselves on someone else. For early-blooming, *Cinerarias*, and more especially Chinese *Primulas*, should be sown early in March. The seeds of the latter are always expensive if good, and those who have good-coloured varieties should be reminded that they will have little chance of obtaining seed, unless they take the trouble of artificially assisting the flowers in the usual way, by bringing the anthers into juxtaposition with the pistils when both are ripe for the operation.—R. F.

## METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending March 1st.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Air.		Earth.			
			Max.	Min.	1 ft.	2 ft.		
Wed. . . . . 23	29.588	29.459	42	32	37	35	S.W.	.00
Thurs. . . . 24	29.471	29.434	50	19	40	37	W.	.00
Fri. . . . . 25	29.688	29.382	47	23	37	37	S.W.	.00
Sat. . . . . 26	29.541	29.437	51	20	41	37	W.	.00
Sun. . . . . 27	29.533	29.352	54	39	43	37	S.	.00
Mon. . . . . 28	29.540	29.410	55	43	45	38	S.	.00
Tues. . . . . 1	29.605	29.528	55	49	46	40	S.	.13
Mean. . . .	29.553	29.430	53.57	35.01	41.14	37.14	..	0.14

23.—Overcast; cloudy but fine; densely overcast.

24.—Overcast; fine; clear and fine at night.

25.—Clear and frosty; very fine, fine, very mild.

26.—Very fine; cloudy but fine; overcast.

27.—Fine but cloudy; fine; clear and fine.

28.—Overcast; densely overcast; clear.

1.—Boisterous; densely overcast; rain at night.

## TRADE CATALOGUE RECEIVED.

J. Carter & Co., 237 and 238, High Holborn, London, W.C.—  
*Carter's Practical Gardener, Fourth Edition.*

## TO CORRESPONDENTS.

\* \* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

Books (*Wimbornton*).—The book is out of print. A better and fuller one will be published hereafter.

UYDALE'S ST. GERMAIN PRAR (*P. Sodom*).—The Belle Angerine, if true, as is that exposed for sale by Mr. Padmon, is the same as Uydale's St. Germain. It has more than twenty other synonyms, which you will find detailed in Hogg's "Fruit Manual." You may have a Pear wrongly named.

HYACINTHS AND NARCISSUSES AFTER FLOWERING (*D. E. N.*).—If Hyacinths and Narcissuses are left in the pots in which they have bloomed they will not be any better than were they taken out when the foliage



Pea supporters; it should be lay-cord; the holes in the frames 9 inches apart. Your suggested forms would do, we think.

**GARDENERS' EXAMINATIONS (E. B.).**—If you write to Mr. Richards, Assistant Secretary, Royal Horticultural Society, South Kensington, he will send you printed particulars.

**PEA (A. R.).**—Among the myriads of varieties the seed of a Pea must be very tender indeed for anyone to tell from them its name. Yours are like those of Champion of England.

**RESURRECTION PLANT (E. N. R.).**—This, the Rose of Jericho, or Anastasia Microchloa, is an annual, requiring to be grown in a frame like a half-hardy annual in spring, and succeeds in light loam. What you have is a living plant, but is dried speedily, which has the property of expanding in water, and assuming a life-like appearance for a time. In the "Cottage Gardeners' Dictionary," page 34, you will find the following statement:—"An annual plant, indigenous to the Egyptian deserts, and called the Rose of Jericho. When full grown it contracts its rigid branches into a round ball, and is then tossed about by the wind. When it alights on water, or on damp ground, the branches relax and open out, as if its life were renewed, hence its name of Resurrection Plant."

**HYACINTHS AFTER FLOWERING IN WATER (E. N. R.).**—After flowering they may plant them out in an open border, but they are of little use, though we have seen them do lucrably well in borders after a year or two. It is usual to throw the bulbs away when the flowering is past. They are of no further use for growing in water or pots.

**FORCING VINES (A. O.).**—Now is a suitable time to apply fire heat for the house, so as to keep up a temperature of 40° at night for a fortnight; then advance it to 45°, and in the course of another fortnight to 50°, and have it from 55° to 60° by the time the Vines are in leaf and showing for bloom. You may syringe them morning and evening until in leaf, and maintain a moist atmosphere by sprinkling water over all suitable surfaces two or three times during the day. The bleeding of the pot Vines in the greenhouse may be stopped if you dip the ends in a pan of boiling pitch, but this will destroy the eye next to it if at all near. Hot sealing-wax will not injure the Vines, but it will not stop the bleeding. The "patent knotting" used by painters is the best composition we know for stopping bleeding in Vines and similar subjects.

**GOLDEN CULCITES FOR BEDDING (J. H.).**—Except for warm situations, these are not suitable for bedding purposes. We cannot name plants from leaves only; flowers are necessary, good specimens with foliage.

**PLANTING FOR BEDDING MARSHES STOCKS (Yours Rosarian).**—Plant in rows 2 feet 6 inches apart, and 6 inches from each other in the rows, and not much deeper than sufficient to cover the roots. In bedding put in the buds near the soil, and when they have begun to grow you can cover up to them with soil.

**CONFERS FROM SEED (J. H.).**—Sow this month (March) in pans well drained, and filled to within half an inch of the rim with light sandy soil. Water the seeds evenly with a watering-pot, and water with fine soil. Water gently, and place the pans in a cold frame, or cover them with a hand-glass. Keep the soil moist, but avoid making it very wet, and when the plants appear admit air freely, keeping them as cool as possible. In winter protect the plants from frost by covering with glass. Put the seedlings off round the pots, putting about a dozen plants round the side of a 6-inch pot. Continue them in a cold frame for another year; then, after being well hardened-off, they may be planted out in lines 1 foot apart, allowing 6 inches between the plants in the lines. Water them in dry weather until they have begun to establish. In two years they will be good plants, requiring to be again transplanted. Allow them double the distance they had before, or they may be planted out where they are to remain.

**HUMEX ELEGANS DUTCH (A. D.).**—We are unable to account for the plant being so suddenly and so much injured, as you state, as you say you have been hitherto successful. Perhaps it is owing to the soil, and we would advise you to try a change of compost, say two parts turfy loam, and one part leaf soil, omitting the horse droppings and peat; and in shifting the plants do not put them deeper than they were before, and shift before they become root-bound. Allow them plenty of room, so that air can reach the stems.

**POINTING AN OLD GARDEN WALL (An Old Subscriber).**—You will not find anything equal to pointing with mortar, the joints of the brickwork being well raked or picked out previously. Cement will not do, for it is liable to crack and fall. To nail the trees to the wall, as you say, it is not impossible to nail the trees from the bad state of the wall, you may now unnailed the trees and wash the wall with a mixture of lime, sulphur, and soot, brought to the consistency of paint with a solution of 4 oz. of soda ash to the gallon of water, allowing it to dry well at a temperature of 160°. If you do not think it well to unnailed the trees, you may syringe the wall and trees with a solution of 3 ozs. of Clarke's compound to the gallon of water.

**CANNAS (F. Dub.).**—A dozen with fine foliage are:—*Schizanthus major*, grandiflora, bicolor, double, all with fine foliage, and a variety of *Canina*, *Amis Orange*, and *Veronica*. These are for garden planting. Four others are *Warcewiczoides grandiflora*, *Francia de Nice*, *Keteleeri*, and *hybrida Warcewiczoides*. They may be obtained of any of the principal London or provincial nurseries and seedsmen. We cannot recommend dealers.

**NAMES OF PLANTS (A. Comfort D. J.).**—*Gymnocarpha ochracea*, *Fittonia argyreaurea*, (*Chloris* *Herb.*), *Epidendrum cochlearium*, (*B. F. H.*), *Nephrodium molle*, *Desf.* (*A. B.*), *1. Kennedyi* (*Hardenbergia* monophylla), *2. indeterminate*; *3. probably a species of Gynophallium*, but impossible to tell from the wretched specimen sent.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### THE SPRING IS COMING, BROTHER FANCIERS!

And can I possibly be cheery-hearted enough to write the above? Is it not far on through February, almost March, and still the frost is on the pane? Has not that north wind sent half the world to their beds, and the other half it coughing by the

fire? Yes, true; but in spite of this—nay, the more, because of this cold and frost, the spring is coming, and coming quickly too. Let an old legend help me to grasp the soothing truth.

Concerning Candlemas-day—that is the 2nd of February, when we take down the Christmas decorations in our churches, there is an ancient superstition universal in Europe, that if it was a sunshiny day the winter is not half finished. The Germans, too, say that the badger peeps out of his hole on Candlemas-day, and if he finds snow he walks abroad, but if he sees the sun shining he draws back again into his hole. Well, on Candlemas-day this year, even in the genial West of England, there was snow; and more than that, on Valentine's-day it was bitter, biting cold, and men and boys were skating, and the postmen—Oh! the poor postmen!—did not bless the boys and girls for the extra work they gave them, and did not, as usual on fine Valentine days, hand in the bulky letters with a joke and a smile. So putting legends and weather together, the spring must be coming, and coming at a jump, for it is not the first week in January, but the last in February, and it is cold still. "Hope on, hope ever!" this is my motto. In sick rooms, beside sick beds, say still, "Hope on, hope ever!" Take the invalid's thin hand in yours, and whisper to your heart and in his ear, "Hope on, hope ever!"

But I am digressing. The spring is coming! Soon we shall have the first after-tea stroll, and hear the Blackbird's note, and watch the Robins playing at building their nests—they seem to play at it at first, they too, taking up the strain, "The spring is coming!"

Now, ye good people, who never loved a bird, whether fowl, or fancy Pigeon, or cage bird, or cared to watch the busy bee, republic, ye know not how many resources those who love these always have. Now that spring is coming, I look through my fowl house; I think of what variety of fowl I shall breed this year, I see about broody hens, talk the matter over with poultry-keeping cottagers, I see if the coops are in order; and then comes a vision of chickens on the grass in the May sunshine; for you know spring is coming, and soon I shall hear the hum of the bees among the spring flowers. Then I look through my poultry books, and revive recollections of all little clever plans; I get down back volumes of "Our Journal," and turn the leaves and re-read the choice bits.

Then, in intervals of finer weather (the sun does bear power now, for the spring is coming) I adjourn to the Pigeon-loft, and stand and watch how affairs are going on there. A great deal of cooing there is, of course, for the spring is coming, and there as I stand I plainly perceive a dangerous flirtation between a lady and gentleman, which must not be permitted, for it would be an unsuitable match, and like a hard-hearted old baron of old I seize the lady, who has been giving sparkling glances in reply to the cooing, and running, and tail-sweeping of that young scamp of a cock; and I place the lady in the strong prison of the mating cage, and with her the gentleman I intend she shall well, or "to a nunnery she shall go," as Hamlet said to poor Ophelia; but no fear of a nunnery, for after a little demur she will wed as I wish her.

Not fowls or fancy Pigeons alone, there are my (no, I dare not write "my," lest I should have a disapproving chorus from little girls' throats;) our Canaries. What means this extravagant singing that I hear? Why, it means what I write, "Spring is coming." Away, then, to the school-room, all hen birds; it shall be a hen convention there—governess, all birds. The cocks shall be my company. But more. I go to a certain cupboard and pull out the nest-baskets and look at them, and trifle with them, and think, after spring has come, how dainty little eggs will be in them, and then I think about nests and all the appurtenances of breeding. I look at the breeding cages, and almost fancy I see the groundsel and chickweed on them, for you know spring is coming.

I spoke of the resources which fowl, and Pigeon, and bird, and bee keepers have over and above other people; and they have comforts, too, as well, over and above what others have. And now on this head I submit a true anecdote, recent as well as true.

For twenty years there was a blessed bonifol home—a spacious house, large, far-extending gardens, greenhouses, poultry-yard, and all within and without betokening wealth and comfort. More still; within that home was a happy and very numerous family—clever, promising children, grown, and growing up; comforts and blessings. But this home had to be left, and another to be made in a far-off part of England.

"His hard to part when friends are dear,  
Perhaps 'twill cost a sigh or tear."

And so it was with parting, not only from friends, but from the beautiful home of twenty years. The numerous accumulations—ferns, flowers, fossils, &c., which cannot well be carried away to another distant place, were given away to friends, and are kept for the sake of the givers. Now in this home was a clever, kind, grey Parrot. Many things were removed gradually, a part of the family were gone, the little children were gone, and the Parrot noticed all, and watched the departures. At length the day came for the final leaving, for the looking round the empty house, and for locking the front door, which now closed with a horrid hollow sound. Mistress and Parrot went last, and the bird bowed to the house and said sorrowfully, "Good-bye, good-bye;" and on the way to the railway station he kept turning towards his home of so many years, and repeating his sorrowful "good-byes." This bird had always been a favourite, but now he is loved, and will be tended all his days with fond hands, because of his part taken, and evidently felt, in the general sorrow. Is not such a bird priceless? I am afraid the cheery beginning of this paper has, to say the least, a somewhat pensive ending; but, as Hood says—

"There is no music in the life  
That sounds with merry laughter solely;  
There's not a string attuned to mirth,  
But has its chord in melancholy."

—WILTSHIRE RECTOR.

### PROFITABLE POULTRY-KEEPING.

SEVERAL articles in your Journal respecting profitable poultry-keeping, I have sent my results of last year, 1869. I have the management of the poultry for the gentleman to whom my husband is gardener. I had twelve *Hamburg* hens, and six *Cochin-Chinas*, and nine Ducks. I had 2500 eggs, and reared seventy-four chickens, and fifty-one Ducks.

Received for eggs, chickens, and Ducks	£	s.	d.
Expenses for food and exhibition	25	13	4
	16	10	1
Profit	£9	3	3

—E. H.

"S. O." thinks I'd. each a good price for eggs. I get for mine during the winter months, say from October to February, 3s. per dozen, and the rest of the year 1s. 6d. per dozen. During March and April I generally sell a few sittings at 5s. or 6s. each, say for eleven eggs. I do not keep a profit and loss account, but am quite satisfied I have a good balance on the right side. There is no secret about having plenty of eggs all the year round, and the way I obtain them in the winter is by strictly adhering to the following rules:—Keep none but first-rate birds, and sell all bad layers. Choose a good hardy sort; I prefer Buff *Cochins*. Clear off all old birds after every first year's laying, and replace with early pullets, either bought or reared. By this means you will ensure plenty of eggs in winter, and your friends will not be long in learning the fact, and be ready to pay a good price for them. In my opinion, plenty of eggs in winter is the great secret of making poultry pay.—G. H.

In reply to "S. O." I beg to state that the value of the 106 eggs, for the 106 chickens, was not deducted from £4 10s., as it ought to have been, which is therefore less by 13s. 3d., at 1d. the egg. The average price for eggs was intended only to have been 1d.; but friends who know the place, said it was not enough, and eggs are now selling at 2d., 2½d., and are often sold for 3d. each; but the only way for "S. O." to obtain "such good prices" is first to get the same rate of eggs, and then come to the same place to live. The chickens that were sold for £1 9s., were at rather a fancy price for this place, but they were beautiful *Dark Brahmas*; cheap I called them at 5s. and 7s. each, and the chickens killed were averaged at 3s. each, though many weighed their 5 lbs. under six months old, and were as fat as Capons, but much more meaty. I do not keep poultry for profit, but have great pleasure in feeling what may be saved by doing so for the house, and in having the luxuries of good chickens and plenty of new laid eggs.—A. W.

### POULTRY PENS.

I HAVE noticed several complaints of late in the Journal respecting the wire backs and tops of poultry pens, your correspondents asserting that the plumage of the birds gets injured through this arrangement. Well, I am of an opposite opinion,

and I contend that when the pens are large enough the birds suffer no injury. I am an extensive exhibitor, and have never yet, that I am aware of, had a bird injured on account of open backs and tops.

The pens referred to, no doubt, are Messrs. Turner's, of Sheffield, and I think it only fair to them to say that they are without doubt the best and most convenient pens now in use, at all events I have seen nothing so good.

The advantage of having the backs and tops wire, is to keep the alleys in the exhibition as light as possible.

The cause, I fancy, of birds having their plumage spoiled is by using baskets unfit for the purpose. Baskets should be large enough, and lined on the sides and top. If such baskets are used, we shall cease to hear much about spoiled plumage. Care should also be taken to have the baskets well fastened up, to prevent urchins at the railway stations amusing themselves by getting hold of the cock's sickles.—YORKSHIRE.

### THE OBJECTS OF A POULTRY SHOW.

I HAVE noticed a tendency lately in discussing several questions to argue as if the sole object of a poultry exhibition were to win or to award prizes, and I cannot but feel this is a dangerous way of regarding the matter. I have reason to believe the same spirit has already begun to lead to betting upon the awards; and if this once become general, adieu to all genuine fanciers, for we may write "Ichabod" upon the whole.

The whole is only a means to an end—and that end is the general and real improvement of poultry either in beauty or in solid value, and the increased encouragement of poultry-keeping among the people. In this latter aspect of the matter I feel always specially interested, and am, I fear, answerable for leading many a one into keeping fowls.

As an instance of what ought to be, I will say that I have ticked off in my Bristol catalogue just about a hundred local exhibitors, of whom more than three-fourths are this year new names! "Our chaplain" remarked the other day that shows were "coming west." This, too, is another branch of the subject; anyway, after the prizes have been awarded and the cups are carried home, I look upon these seventy or eighty new exhibitors (I mean exhibitors, not pens), as the real work done by the Bristol Show; and it is worth a great deal in the opinion of—L. WRIGHT.

### EGGS.

THE importation of eggs into England increases vastly. From 1843 to 1847 the import for the year amounted to 73 millions of eggs; during the next five years 103 millions on an average; in the following year 147 millions; and in the next 163 millions; in the year 1861, 273½ millions; in 1864, 335½ millions; and in 1866 as much as 430,878,880 eggs, valued at £1,097,197. In 1867 397,934,510 were imported, and in 1868 383,969,040. By far the greater part of the imports come from France, and very few from Germany. The cargoes of eggs are chiefly shipped in steamers, and go to the harbours of Southampton, London, Folkestone, Newhaven, and Shoreham.

The time of egg-laying begins in France from January to March; April, May, and June are the most productive months; in July the production falls off, takes up a little again in August and September, leaves off entirely in October and November, and in December is absolutely nil. In order to obtain eggs even at this time the stables are warmed, and the hens are fed with buckwheat and meat.

Poultry-keeping in France is chiefly in the hands of the small landowners, who carry it on in an energetic business-like manner. This is particularly the case in the provinces of Burgundy, Normandy, and Picardy. Paris alone consumes 12,000,000 francs worth of eggs. The harbours from which the greatest export of eggs takes place are Calais, Cherbourg, and Honfleur; at Calais the eggs are packed in chests and straw, 1,100 eggs in each chest; at Cherbourg and Honfleur in chests of 600 to 1,200. Of late years large masses of eggs are opened in the German markets, and the yolk sold cheap; the white is sold to manufacturers.

### TORQUAY POULTRY AND PIGEON SHOW.

MANY were of opinion that so late in the season it would be impossible for any society to obtain a good entry for a poultry show, but the Torquay meeting was a refutation of such forebodings, for not only were the entries numerically strong, but they came from the bulk of our most celebrated exhibitors of poultry and Pigeons. This may, of



use; but it will not answer in every case." Now, when a man writes thus fairly you believe all he says in the bird, farmer, and do not set him down as too great an enthusiast. This chapter is ably and practically written. Chapter III. treats of "The Characteristics of Dark and Light Brahmas as Bred for Exhibition." To show the tone in which Mr. Wright writes we must beg leave to make a rather long quotation.

"He is not true fancier—he is altogether unworthy the name—who merely seeks to win prizes; still less is he one whose only object is 'to have the best stock in England and beat every one else,' as is the case with those who 'decline to sell eggs at any price'—a miserable spirit and a miserable ambition this. For far higher ends do the real brethren of the craft breed and show their fowls. They believe that the fowls are objects of their interest as well as of the public, and that they are to be of service to their country; that poultry is an important link in God's grand economy of nature, and destined to play no small part in that great 'food question' which is ever pressing more deeply on the minds of those who study the social welfare of man; and that not only work and study, but in his degree, so to improve and maintain their favorite breeds as may make them better adapted to serve mankind, while at the same time their exceeding beauty shall be so increased as to render them still more attractive in the eyes of the softer sex to whose irascible and suspicious they are so particularly adapted. One who works with such objects—and many do—will always be unselfish. When a brother fancier shows at last a better pen than his own, he will rejoice that a step has been gained; and whatever knowledge he may have acquired will be cheerfully and readily communicated. A real fancier is a true patriot; and if John Webb is remembered and extolled for having improved the wool and increased the carcase of the sheep to which he devoted such attention, men like John Donalds, who raised the standard weight of the Dorking fowls several pounds over what was known before, or Mr. Hewitt, who has devoted years of his life gratuitously to aiding, by his vast experience and knowledge in awarding prizes, the general improvement of poultry, have also deserved well of their country, and done good work for their day and generation."

This is a tone and spirit which we wholly like.

Having given the characteristics of the two varieties of Brahmas with great nicety, Mr. Wright passes on to "The Practical Breeding, Rearing, and Management of Brahmas for Exhibition." This is a knowing chapter, and Brahma exhibitors will wish to read it, unless we make a great mistake, as also the one on "The Judging of Brahmas." Our author concludes with a passage we entirely agree with.

"Finally, we would repeat that there has been of late an increasing tendency to show birds to fit. All large birds are subject to this evil, and years ago, when it was even more prevalent than now, Mr. Hewitt, of good service by passing over in a marked manner several over-fattened pens, and thereby discounting the practice of feeding show fowls to the highest possible point, to their utter ruin. Again, however, the same vicious system appears to be gradually creeping in, and as the practice is really dishonest, it should be checked as far as possible by awarding prizes to pens which evidently carry more fat than is consistent with real health and condition."

On carefully reading Mr. Wright's work we would say—It is able, just, and very readable; the style of writing clear and attractive, while the illustrations are as we have said, most excellent. Unless we greatly mistake, "The Brahma Fowl" will increase the number of Brahma breeders. If all the latter now living buy and lend the work, Brahmas, Light and Dark, will be bought up fast enough. We think

"That those now will love who never loved before,

"And those who Brahmas love, will love them more."

—WILTSHIRE RE TOR.

## THE GLASGOW PIGEON SHOW

(NORTH BRITISH COLLEGE SOCIETY'S).

(Contd. of from page 119.)

**DEFECTIVE STRUCTURE.**—Perfection of structure has ever been put forward as the cardinal virtue of the Pouter, and especially is it so emphatically whenever the so-called "colour-and-markings" fancier dares a remark in the interest of plumage development. The attitude of the structuralist is, in point of fact, apologetic; admitting the sacrifice of plumage, he pleads as a set-off "compensation" in structure. As advocates of the standard, whole and indivisible, we are, therefore, entitled to exact to the fullest extent the pleaded set-off, and we roundly assert on unimpeachable evidence that such compensation is not apparent in proportions at all equivalent to the confining degradation of plumage.

The victories won in the department of structure are no longer of yesterday's date, and the question for to-day is, Are those victories being turned to proper account? We think not. For taking Pouter shows as a whole, too often are missed those after-effects and refinements which should always be the sequence of structural breeding. Giving, then, every credit for attainments in structure now long since established, and conceding as invaluable, in their degree and place, size, strength and even colour, we must again and again insist that unbridled standard alone should be encouraged, and that the short n.p. Twenty inches in feather will not suffice, it must be 20 inches in feather combined with the race-horse and not the dray-horse build, for the ultimate of structural breeding is not mere size, but is the utmost refinement of form on the largest possible scale.

Defective structure yet exists to an extent hardly credible. Especially is it noticeable in the crop, so often contracted in size and wanting in rotundity and carriage—a fact the more remarkable since the

Pouter derives its very name from this noble property. Boldly defined and phallic globes, majestic in size, nobly dilated, poised as it were on the shoulders, forward in carriage, and situated at a sufficient distance above the insertion of the limbs, are the exception; while hags flabby and pendant, or stiff-winded and egg-shaped, are the rule; these latter in particular making no distinctive start from the breast, but maintaining an almost unbroken line from the limbs to the upper curve of the crop. There is something in a name. Let us hope that the word "globe" will be used more frequently; for all Pigeons have crops, but the globe belongs only to the Pouter, and without it as Pouter however handsomely and aspires to be a true grand and representative specimen. Defective structure may again be found in the disproportion between limb and feather. Infinite extension of feather without a relative lengthening of the limb is a distortion to be avoided, not, however, by curtailing feather, but if possible by extending limb. And here we may advert to the increasing number of birds with limbs short in the lower joint, a defect detracting much from nobility of carriage. Passing over for brevity's sake slenderness ofirth, compactness of shoulder, closeness, height, and stoniness of limb, stocking-bodiness, length of pinion, and many other properties always to be solidly maintained, we venture a word in depreciation of "hog-back," that most hideous of Pouter deformities. Fortunately this defect in all its enormity is seldom plainly visible at Glasgow, but here and there an ominous tendency to this evil, and to the kindred evil of round shoulders, warrants a precautionary record. Lastly, we may bespeak the attention of structuralists to the head properties, three of which being of primary importance—viz., delicacy of shape, fineness of wattle, and meekness of look. High foreheads, great breadth, hawk beaks, or coarseness of any kind are destructive of feminine expression, and that pliant look of almost wicked innocence, so attractive in this variety.

**STRUCTURE VERSUS THE WHOLE STANDARD.**—Could structuralists show that to their earlier successes they were adding refinement to refinement, and that artistic results in form are now as widespread and established as defects in plumage are rampant and notorious, then the compensatory theory might avail. But they can make no such exclusive claims. Refined development of structure is neither widespread or established, and where it is achieved, it is as much due to the conservative efforts of the "whole-standard" fancier as to the coarser methods of one-sided breeding, for such structuralism must be called. Structural compensation for an impaired standard is a fallacy almost too transparent for analysis. Even when unnumbered by intricate considerations of plumage, structuralists are producing no exceptional superiority either in size or symmetry. The White classes as a case in point, congested as they are with an extraordinary proportion of inferior birds. On the other hand, whole-standard fanciers with all the difficulties of plumage superadded, are from time to time presenting in the Piel divisions, specimens satisfying exacting conditions alike of plumage and structure, showing that a due regard for plumage is not incompatible with development of form. Especially, too, is this Show remarkable for a general improvement of markings, obtained in a marvellously short time and without any sacrifice of precious gains in size or contour. To reinforcement of structure, therefore, be added refinement of plumage, and we look to future exhibitions for colours brightened and purified without the abatement of a single standard virtue already attained.

The much abused—nay, the almost scorned—colour-and-markings fanciers are really the "whole-standard" advocates misnamed. Their demand for improved plumage implies no disregard of structure, but is rather a natural reaction in favour of unadorned properties. It is not that they like structure less, but that they love "whole standard" more. They claim even in structure equal merit with the structuralist, but contend for artistic effects and for symmetry. The White classes are a case in point. They contend that with the improved stamina and constitution of the stock more selective methods of breeding are demanded, and they feel justified in opposing that sectional treatment of the standard which most mars attractive properties, and then vaunts a compensation empty and unprovable, or at any rate of but just significance.

Even in the abstract no logic can be found for the affected leaning to structure at the expense of plumage. The eye which exacts satisfaction in colour and sometimes in markings is not likely to content itself with distortion of form. To indulge a deterioration of plumage in the interest of symmetry, is really to foster restrictions in the region of taste where always the most generous latitude should be allowed. It involves also a disintegration of the standard, which should be treated as whole and indivisible, and it leads to the absurdity of attributing relative values to sections wholly dissimilar and incapable of comparison. This affectation is working infinite mischief in practice. First, it robs plumage of all its attractions, and then makes it the object of damaging contrast. It is time, therefore, that conflicting interests should be accommodated. There is room for all, even within standard boundaries. Let the structuralist confine his energies to the White class, leaving the plumage divisions to his brother structuralist—the "whole-standard" fancier. For plumage development is yet in its infancy, and we have only a foretaste of the beauties it will reveal. But little is known of the adornment and effect of well-contrasted markings, and we have but glimpses of the splendour, purity, radiance, and diversity of colour with which the superb Pouter lines may yet be enriched.

The classification adopted by the Society is a pledge that plumage shall be considered as fundamental to the standard. Whenever, therefore, a chequered blue, a bastard black, a dappled red, or a mealy yellow obtains a prize, owners of standard-colored birds are clearly wronged. In such culpable disregard of the schedule may again be seen the baneful influence of over-rated theories. The rivalry between factions and true standards is producing the most bewildering uncertainty, and is answerable for that tape-line system of judging which at nine-tenths of our shows, for the sake of mere length is overlooking valuable properties. A system so haphazard is not worthy of a judge's fee, for any child who can handle a tailor's measure may judge a Pouter show by such a method. But if instead of the whole standard structure alone is to be petted, why not away with the misleading pretence of plumage divisions? Let all Pouters be thrown into a single class, to be judged by a standard solely structural. Let such standard insist upon those refinements, developments, and niceties of form, those subtleties and nuances not to be found in too great a profusion, even at a Glasgow show. Let the tape line be discarded, but only results in advance to his more talented co-judge. In Messrs. Corrie and Esquilant the Committee were furnished with Judges of admitted experience. The former gentleman, as a sometime successful Pouter-breeder, might fairly have been left to deal justice to the Pouter classes; and the latter is so versed in his office, that the general classes could scarcely have been in safer hands, while each could have acted as referee to the other. This division of labour would have doubled the time available for the awards, to the far greater comfort of the Judges, whose arduous duties were responsibly performed under totally inadequate conditions.

**THE JUDGES AND THE JUDGMENT.**—The appointment of a judge assumes his fitness for his office; why, then, should the Committee have made the amazing mistake of pairing the two Judges in the face of their heavy duties? If a judge is competent, no necessity exists for pairing him with another; if incompetent, such a process cannot quicken him, but only results in annoyance to his more talented co-judge. In Messrs. Corrie and Esquilant the Committee were furnished with Judges of admitted experience. The former gentleman, as a sometime successful Pouter-breeder, might fairly have been left to deal justice to the Pouter classes; and the latter is so versed in his office, that the general classes could scarcely have been in safer hands, while each could have acted as referee to the other. This division of labour would have doubled the time available for the awards, to the far greater comfort of the Judges, whose arduous duties were responsibly performed under totally inadequate conditions.

The moral of the Glasgow Show is contained in the fact that year by year it exactly summarises the progress and position of the Pouter classes. By its light we have endeavoured faithfully to depict the Pouter of 1869.

## MELROSE POULTRY, PIGEON, AND CAGE BIRD SHOW.

LAST, but not least, of the Scotch exhibitions was that of the Waverley Association. No building is more appropriate for such a Show than the Corn Exchange at Melrose, the light from the roof being abundant and equally diffused. The care bestowed on the birds by the Committee will, doubtless, be duly appreciated by the exhibitors, and great praise is due to the Secretary, Mr. Mason, for his incessant superintendence.

**Broodhens** were the first and strongest class, all varieties competing together. The first prize was awarded to Dark Grey, and the second to Silvers, and the class was generally good. At this advanced period of the season it is surprising to find *Spanish* shown, after so much hard work, in such faultless condition, and this speaks well for the soundness of constitution of the birds. The two winning pens were perfect, and most of the others good. The *Cnp* for this section was won by the first-prize pen. There were many good pens of *Cochins*, the winners being Bells of high merit. The *Broodhens* were above the average in quality. In this class we noticed the largest and best-formed hen we have seen this season, but altogether too rusty in colour for prizetaking. Mr. Hardie won the *Cnp* for *Game* with a good close-feathered pair of birds. *Ths* *ducks* were in good order, the winners in all classes being almost perfect. The *Cnp* was awarded to a fine pen of Gold-spangled; the hen in this pen was particularly good. The "Any other variety" class was one of striking excellence, every pen being worthy of winning a prize. This result was doubtless brought about by the offer of a gold medal, which was borne off by a splendid pen of *Croze-Couers*, the second prize being taken by Silver-Falands. The rest were *Falands* and *Houdans*. Although *Bantams* of all varieties were in great force, there were few in the fine condition so desirable for success in prizetaking. Of *Ducks* there were good classes. The *Romans*, to which the gold medal was awarded, were "the pink of perfection" in all points, closely pressed, however, by a handsome pen of *Aylesbury*. *Pintails*, *Bahamas*, and *Carolinas* were successful in taking the best positions in class for other *Ducks*. In *Turkeys* Lord Binning was successful with a fine pen of Cambridge; and in the *Geese*, those of Mr. Hardie's pen were of large size and perfect form.

No extra prizes were offered for *Pheasants*, and the entries suffered in proportion, but the birds shown were good, and in fine condition. The first-prize *Fantails* were not the fat-tailed style of bird so much admired by some sections of the fancy, but the small, nervous, high-carriage, fairy-looking style, that must eventually make their way to the front. The first-prize *Turkeys* were perfect, and that is saying much, for there is none of the Toy varieties more common, and yet,

strange to say, with fewer really good specimens. English *Owls* were very good, and in fine bloom.

Of *Cage Birds* the Scotch Fancy Canary predominated, though there were good specimens of Goldfinch Males, Goldfinches, Starlings, &c.

We published the prize list and Judges' names last week.

## PIGEONS AT WOLVERHAMPTON SHOW.

I NOTICE in the remarks of your correspondent about the above Show that the *Dun Carriers* exhibited by Mr. White, and obtaining second prize, were not so good as that gentleman's *Blacks*. This is a great mistake, the *Duns*, in my judgment, being far superior. In *Fantails*, my pair that took the second prize is mentioned as being far superior to the first-prize pair of Mr. Tomlinson. I need only say I would give my pair and £1 to exchange. In *Dragoons* the first-prize pair is mentioned as being coarse; I consider it the best pair I ever saw. I have made the above remarks, judges being so often censured without cause by persons who do not thoroughly understand.—H. YARDLEY, Market Hall, Birmingham.

## THE ROLLER PIGEON.

HAVING flown a flight of *Sky Tumblers* and *Rollers* daily for the last twenty-five years, I am in a position to give your readers a little history of the breed of these birds. About fifty years ago there were many tumbler fanciers living in and near the town of Birmingham. The late Mr. G. Phillips, of Handsworth, near Birmingham, was the first to have this kind of birds, being fond of always having a good flight of Tumblers that would fly high, pack closely together, and all tumble at the same time. He was such an enthusiast of these Pigeons, that I am told he would go fifty or one hundred miles to buy a good Tumbler. The birds down by him were *Baldheads* and *Black and Red Mottles*. At that time they were short, compact, full-chested birds, with short beaks and round heads. Some of them being better and quicker tumblers than others were selected and paired together; some of the birds bred from these were what are called *mad Tumblers*—that is, birds that tumble so much and so carelessly that they were usually called *mad Tumblers*. By putting these *mad Tumblers* together their young ones would roll. It is not to be supposed that all birds which are feather-legged and having the characteristic markings of *Rollers* can roll; on an average there is not one out of a score that can roll. *Rollers* are to be found in most of the shires, but the breed comes from either Birmingham or the Black Country. The coarse look of the *Rollers* arises from their being bred irrespective of colour, shape, or properties of head, eye, and beak. They may have been bred only for their high flying and rolling properties.

It is a pretty sight for a high-flying fancier to see a kit of *Rollers*, say fourteen or fifteen, turned out of a loft or yard, and watch them gradually ascend till they climb into the clouds, where they have been known to remain eight or nine hours, and about every two minutes they would all roll together, putting you in mind of the fireworks called serpents, issuing from the explosion of a rocket when it is at an immense height. I have known *Rollers* that could roll 8 or 10 yards, breed nothing but single Tumblers, and single Tumblers to breed the best *Rollers*.

They should be kept as thin as possible, for if they get fat they are sure to roll down and kill themselves.

The best food is the best malting barley; fed on this they will fly on an average an hour or two daily. If weather is likely to be fine and not cloudy, their food can be changed to beans, or peas, or Indian corn for a few days.

I purpose shortly to give your readers a few hints on the management and selection of small *Sky Tumblers*, a breed that has been very much neglected.—G. HANBY, 19, Fulham Road, Brompton, London, S.W.

## TRUMPETER PIGEONS.

If I were bound to find some fault with any of Mr. Firth's ideas of the standard of a Trumpeter for the show pen (see page 119), I would say, Give me a little more than 2 inches in diameter of mottling on the shoulder, and I would specify the whole of the bird to be black, with the exception of the shoulder being half white, well mixed and arranged, but not to interfere with the secondary, and much less the primary or flight

feathers of the wing. I would not have any white on the head, neck, or back; for what looks finer than a large, well-spread black rose, large and well-spread black-feathered feet, long and strong black flights and tail, and, above all, a broad and fully-developed black breast? But this is wholly an imaginary bird.

I believe "FLECK DE LIS" (see page 77), not only introduces the question of the standard of the breed, but also that of breeding Trumpeters. I think that there is as much difficulty experienced in breeding good Trumpeters as there is in breeding good Tumblers, Carriers, Pouters, or Barbies. I also think Trumpeters ought to rank next in value to the four above-mentioned varieties in every respect, not only from the difficulty in breeding good birds, but from that of keeping them in feather. Next to the Fantail, no other bird is sooner "knocked-up" with showing than the Trumpeter.

I do not wish to be understood to mean from any of the above remarks, that I consider Trumpeters bad breeders; on the contrary, I have always found them remarkably fast breeders, and good in rearing their young; but allowing this to be the case, you may breed a good many in one season, yet how many of them make any near approach to the standard of the breed? I, of course, speak more to the breeding of Mottles with all their characteristic points.

A few years ago when I was more of a breeder of the Trumpeter, my experience taught me never to breed from a narrow-headed bird; for in Trumpeters, more so than in any other breed, the strength of all properties depends on the stoniness (thickness all over), of the bird. When I say "the strength of all properties," I mean when birds are kept in the best of health and condition, having good food and other things requisite, together with exercise in the pure atmosphere.

I need hardly mention the fact, that to breed Mottles there must be one parent black and the other mottled, or black and white, constituting each pair. I do not mean to say that dark Mottles are certain to be the result, for it is not exactly as in the case of a painter mixing his colours; it is quite possible for a very light bird bred from dark ones, paired with a very dark bird from "blacks," to breed better Mottles than a very dark mottled one might do; and it sometimes is found to be the case, as the result chiefly depends upon the parents the birds are bred from.

There is yet one point more to which Mr. Firth alludes—namely, the decisions given at some of the exhibitions not being satisfactory to the majority of exhibitors. I believe it is the wish of every exhibitor that there be proper valuation given, and universally acknowledged, of every point constituting each standard of the nine leading varieties of fancy Pigeons. I would very much like to know the opinions of the "fancy" on this subject, after which I would suggest principles that might be practically adopted, and make suggestions as to having the matter properly discussed.—THOS. RULE, *Durham*.

## SONGS OF OUR BIRDS.—No. 1.

### THE SONG THRUSH.

No sooner has the new year been ushered in, and the first stray breathings of reviving spring crossed our land, than this princely songster sends forth his summons to the feathered choir. We had the melancholy and cheerful songs of the Robin and Wren during winter, and the lively sweet warblings of the Hedge Sparrow early in January, but the Thrush is the leader of our winged vocalists. There is a very marked difference in the songs of birds of the same species. Among Finches, more particularly, there is a local dialect quite observable, but among Thrushes this difference is to be found in the same locality. We may hear one whose song is coarse, broken, and in a manner monotonous, while that of his neighbour is soft, rich, and flowingly varied. This bird displays a majestic bearing both in his appearance and voice. From the shortness of his sentences his song cannot well be compared with the Nightingale's, and lacking the more flute-like tones, it does not resemble that of the Woodlark; still many of his notes are not only remarkable but unsurpassed, and taking him as a whole, his fine noble form, and beautiful though unassuming plumage, the commanding position he takes on the lawn, his bold, rich, and brilliant song—he is a bird preferable to either; he is no tender summer visitor, no recluse, but a perennial bird of tune. With the first dawns of an early spring morning we find him from the summit of a lofty tree, and with a power of voice which strikes every ear, proclaiming that "the time of the singing of birds is come."

The song of the Thrush is composed of sentences, each in a great measure comprising a single, double, treble, or further multiplied note or notes, repeated generally three times, and after a series of those a subdued warble. Besides richness and sweetness, his song is possessed of a grandeur unequalled by that of any other bird of our woods. After some of those full, clear, and spirited notes with which he at all times opens his song, he will rapidly hurl forth the most imperious calls, many of them in wondrous metallic chimes, then, as if suddenly catching himself, give out those sweet undulating glassy-toned strains of conciliation, that float away as if breathing new life on the leafless trees, and inspiring with love the whole tenants of the grove. List to him in the gloamin! What ventriloquism! Do those soft sweet strains proceed from beneath the cope stone of the wall, or from the trunk of the tree upon which he is seated? No, it is his powerful song pent up, and given in passionate whispers to the ear of his mate; his tongue, as if every now and then striking a silver bell, and his whole articulation suited to the hush that reigns, and the close proximity of the object of his affections. With the rising sun he wakes the earth, calling into tune thousands of smaller tongues, and alone in the last rays of dissolving evening he closes with unrivalled eloquence the day-long concert.

The Thrush is indigenous to Britain, a bonnie bird, and if kept young from the names become very tame, and is easily kept in confinement.—JAMES LUCE.

## THE CRYSTAL PALACE CANARY SHOW.

(Continued from page 155.)

London, *Fancy*, Class 13 and 14, have increased, and very great care must have been taken to bring the winning specimens to the post in such feather. Messrs. Brodriek, Waller, and Mann were the most successful exhibitors, the first winning the cup with 784, a fine *Jonque*. I noticed many "coll" tickets in this variety, but whether claimed by the owners or not I do not know. It is a great pity the London *Fancy* is in so few hands.

I have seen better *Larks*, or I am more fastidious. No. 426 (H. Ashton), first prize, *Golden-spangled*, was a nice bird; I liked 127 better, though there was not much to choose between them. Mr. Judd's 437, second prize, was also a good *Lizard*; but I thought Mr. T. Fairbairn had the "pull" over them all in colour with 430. Nos. 427 and 428 (Fairbairn) were well-spangled birds. In the *Silver-spangled* birds the first prize and cup fell to No. 461 (Mr. E. Hawkins). My hint lay in the direction of 454 (Ashton) or 440 (H. Stephens). But there are many things required to make up a good *Lizard*, and I have no doubt the Judges could have given satisfactory reasons for their awards. No. 455 (T. Fairbairn) was rather "run" in the spangles, but was just the right colour, and right sort of bird to breed from—a splendid hen.

I did not expect to see such a class of *Cinnamons*. From all accounts the mortality among them has been great, but those exhibited were numerous enough and good enough to meet all requirements for the coming season. Mr. Besson was first with his *Jonque* cock, which began its winning career at Whitley last September, and has been at every show of character in England since without having been beaten; a good bird, but rather small, as, indeed, all *Jonque* Cinnamons are. Mr. Vine was second with 472, and, "honour to whom honour is due," I think I am correct in stating that nearly all the winning birds were from his strain. Moore & Wynn showed good stock in this class, and 473 (Messrs. Watson & Cockle), very highly commended, was a splendid bird. Mr. Vine took first and cup; he and Mr. Besson sharing second honours among the Bufts. Mr. Vine's Bufts were superb, but he would have been my cup bird with 475 (*Besson*) tripping up his heels. The very highly commended all earned their diplomas.

I should like to have seen more exercise of discretionary power in awarding extra prizes in Class 19, "Marked or Variegated Cinnamons," where some birds of rare merit were passed over in favour of ordinary broken Cinnamons. Such a bird as 521 (S. Tomes) is not seen every day; indeed, it is difficult in the extreme to produce such an evenly-marked specimen, and an extra first prize would have been no more than its deserts. The first prize, 528, was a heavily-marked broken bird, but rich in colour, with an "East Coves" kind of tinge on it.

The "Any other variety" contained more than forty good, bad, and indifferent. The first and second prizes went to the *Land* of Cakes with two Scotch *Fancy*, shown by Mr. W. Alexander, of Edinburgh—good specimens. Mr. Ashton and Mr. Young were also very highly commended with the same class of bird. 556 (Ashton), second, was a rare *Manchester* Copy, but I think the equal second, 561, St. Helena Seed Finch, hardly comes under the class of Canaries proper while there is a class for any variety of foreign birds. Mrs. W. Slowe's 514, *Yorkshire* hen, third prize, was claimed for the *Polefield* Hall Male form, a fine, healthy bird, beautifully marked. May she be the mother of another "Edward I." that most gentlemanly of Males.

Class 21, *Yellow* *Guldbird* *Male* (Clear for choice).—The first prize,

604 (H. Ashton), was a Mealy bird and not a Jonque. Five entries, and a poor class.

Class 22, *Buff Goldfinch Mule*.—The winner, 609 (J. Doel), was a fine bird, but had dark thighs; he earned his position fairly, as 611 (J. Young) (Snowflake, and winner of the cup at Sunderland) was ill, and could not pull himself together better than to earn a second prize, which he shared equally with 612 (J. Young), an absolutely clear hen. I am sorry to say both these beauties died during the Show, whether from the severity of the weather, or from the many ills to which Canary flesh is heir, I cannot say; but I am happy to take this opportunity of bearing testimony to the great care and attention bestowed by Mr. Wilkinson's assistants upon the sickly members of the flock, and the careful measures taken to fight the cruel cold outside.

In Class 23, *Variiegated Yellow Goldfinch Mule*.—Mr. Doel showed two such birds as I never saw, nor anyone else. 631 and 632 (cnp), equal first, will come between many a male and his wife for some time to come. In Jonques they reigned supreme; there was nothing near them. I should have enquired the equal second, third, and very highly commended, but these two throw them so far into the shade that I cannot find them.

Class 24, *Variiegated Buff Mule*.—No. 609 in this class was what Mr. Doel's were among the Jonques, a prince among Mules. He is as good a Buff as they are Jonques; they are more lightly marked on the wings, but his marking is exactness itself, while the pencilling of the eyes is such as never was seen on a Mule before—black as jet, and as clearly defined as if done to order by one of the guild of "painters and stainers." Each is the type of perfection in its class, but since Jonque among Mules seems to bear a higher relative value than in other classes, there should be a cup for each class, or there is no possibility of a Buff winning, even if the balance of points (bar colour) be in its favor. The other winners and "mentioned" birds were of the class, but I think there was an oversight as regards 619 (Ashton); it was worth a very highly commended.

The *Dark Jonques* and *Dark Mealy Mules* were very fine, and I am still of the same opinion that Moore & Wynn's bird is the best Dark Jonque "out."

In *Linnet Mules*, 720 (Young) and 715 (Ashton) distanced the rest completely, and in "Any other variety of Mule" Mr. Stansfield was first with his Bullfinch and Goldfinch—a great beauty. In this class Mr. Young exhibited a Bullfinch and Canary Mule, or what is alleged to be such, and though it has been passed over more than once as being a "Variiegated Canary," there is no proof that it is *not* what it is represented to be. So far as reliance can be placed on human statements, it is a hybrid between the Bullfinch and Canary. Mr. Harrison Weir recognised a great resemblance to the Bullfinch head and beak, especially in the formation of the lower mandible. However, its reproducing capabilities will be put to the test, and if an impostor, both bird, and breeder and seller will be exposed.

I hurry past the groups, each good in its kind, and remarking that the British birds formed the best collection I ever saw, and regretting that I have not time to notice them, I leave them and the rest of the eleven hundred entries, in the hope that some eloquent pen well versed in bird lore will do so for them.

A hearty shake of the hand from friends one only meets once a year, and we turned our backs on the "Derby" of 1870, crossed the transept just in time to see the clown in the pantomime make his bow, and in a few minutes were flying back to town—in an hour or two flying back to home.

There are two or three sunny memories connected with my visit. I made the personal acquaintance of the Editors of "our Journal," and was duly initiated as a member of the happy family connected with our little serial. I wish I had time to give a few details of my visit, but those who know these best could best appreciate what I should have to say, but I should require a large stock of words indicative of kindness, gentility, refinement—just such qualities as you might expect to find at the head of "our Journal." And I went home, too, where I was nursed when I was a "raw goby;" that is a sunny memory. And I had a regret too. I looked forward to meeting "WILTSHIRE RECTOR," but a severe domestic affliction prevented his leaving home: my disappointment was not greater than the regret I felt at the intelligence, in which I am sure every reader of "our Journal" will join.—W. A. BLAKSTON.

## ARTIFICIAL SWARMS.

Observing in your columns of the 17th ult., a letter from E. Welpole, jun., wishing information on the above subject, I submit my experience for his guidance.

On the 14th of June I had a common country straw hive of bees which had obstinately refused to swarm for two seasons; I therefore determined to attempt the formation of an artificial swarm, for which purpose I provided myself with two empty common straw hives—Nos. 1 and 2; and about 10 A.M., after puffing a few whiffs of a cigarette under the hive containing the bees to be operated upon, I removed it about 10 yards, and placed the empty hive, No. 1, in its place to amuse the many rovers on their return. The populated hive I reversed on a pail or tub, and hive No. 2, with some worker comb attached

therein I placed on the top, and secured the two hives by a band of cloth tightly tied round the part where they joined. All then being in readiness, I commenced a series of drumming or beating, by means of two sticks about 2 feet long, in the opposite direction of the combs. This in a very short time had the desired effect, and the bees might be heard in great consternation ascending to their new domicile. No fear need be entertained of the queen not being amongst them, as she is always one of the first to ascend. The point then to settle was how many bees to leave in the old hive to rear another queen. I therefore lifted the hive gently about an inch, and saw a fine cluster hanging from the new hive, which I estimated at about half the number of bees the old hive originally contained. This was so far satisfactory. The hive in which was the new-made swarm was then removed to the stand of the old hive in the place of hive No. 1, and the bees which had accumulated therein were unceremoniously shaken out in front of the artificial swarm, which they soon joined, and on the return of the bees still abroad made a goodly number. To treat with the old hive was the next step; that was carefully wrapt up, merely permitting enough space for ventilation, and not for the egress of the bees, and placed in an odd corner of the bee-house for two days, to enable the bees to lay the foundation of a new constitution. At the expiration of this time the hive was placed in an advantageous situation, and the bees released. Both hives prospered, and in the ensuing season I took more than one glass of honey from the artificial swarm. But, however successful I may have been in this case, I do not recommend the method being tried on a stock which will throw off natural swarms.—A. R. R.

## SWARMING.

It is our intention to explain this more fully when we come to the practical part of this work. Though it is one of the most interesting parts of bee history, swarming, with all its adjuncts, is very difficult to explain, or put in a tangible form. The building of drone combs, and the formation of royal cells long before they are wanted, indicate that swarming is a law amongst bees; it is an instinct of their being, and tends to their preservation.

In the spring months hives have not very much honey in them. The combs then afford plenty of scope for hatching brood; and young bees are produced faster than they die. Hives soon become "choke full." Sometimes clusters of bees, like bunches of grapes, hang outside. They are ready to swarm. Preparations are made for the important event. The bees well know, long before it comes to pass, that the queen (call her the old or mother queen) goes with the first swarm. What about a successor to the throne? When the swarm shall have gone, there will be no queen in the hive, and no fresh-laid eggs. These wonderful creatures know all this, and, therefore, never fail to set eggs in royal cells, and thus have young queens on the way, before they send off a colony. Generally the eggs for young queens are set about four days before swarming takes place. Inclement weather may prevent the swarm leaving at the usual time, and, therefore, the young queens may be nearly ripe and ready to leave their cells ere the old queen and swarm leave the hive. Sometimes these young queens, by reason of wet or cold weather, are torn out of their cells, and when this takes place swarming is postponed for a week or two. The weather may become more favourable, and a second time preparations are made for swarming. As the time draws near, the bees send out scouts to find a place for the swarm to go to. Like a queen was-p in spring seeking a place to build her nest, these scouts go from bush to bush, and up and down the hedgerows in their own locality. When the spot is fixed on, there is in some way or other a consultation about it in the hive, for messengers are seen going straight to and from the place some short time before the swarm leaves. It may, and sometimes does happen that two places may be selected, half the swarm going to the one, and half to the other. But let us return to the hive, and we shall find there something to excite our admiration. Thirty or forty thousand bees are about to leave the place of their birth, and the comforts of home, never to return. Home-sickness is a feeling unknown to emigrant bees, provided they have a queen amongst them. The signal for departure will soon be given, but not before these thirty or forty thousand bees have well filled their bags with honey. Which GREAT BEE gives the signal to go will never be told, but unquestionably a signal is given, for in a moment the swarm gushes pell-

well like a flowing stream out of the hive. What an interesting sight. Talk about the Pilgrim Fathers (and all honour to them) leaving their native land for the shores of America! Look at these courageous bees in the act of swarming, rushing forth to make the air ring with their cheers, rising into the atmosphere above us, and there roaring at the fullest pitch of joy and gladness, and by reason of their numbers flying in all directions, giving us all the shapes and forms of a thousand kaleidoscopes. The swarming of bees is like a wedding, or the tally-ho of the huntsman in this particular, that it seems to inspire all spectators with a felt interest and enthusiasm in the scene. Brave colonists! Go and prosper, and multiply exceedingly!

(From "The Handy Book of Bees." Being a Practical Treatise on their Profitable Management. By A. Pettigrew. Now in the press.)

**CROPS OF 1869.**—In Great Britain there were cultivated 583,211 acres of Potatoes, and 14,344 acres of Carrots; in Ireland, 1,041,837 acres of Potatoes.

### OUR LETTER BOX.

**PATENT FOOD (J. Ramsome).**—We never employ any. We feed solely upon ground oats, barley, and boiled potatoes.

**FOWLS AND EGGS TO AUSTRALIA (Horsford).**—Do not attempt it. The fowls whilst on board would be a source of great expense, and the chickens, if 5 per cent. of the eggs produced any, would be worth.

**LINSEED FOR POULTRY (Linsell).**—We should not be disposed to put much faith in it after two hours boiling, still it may be useful mixed with barley meal. There is no doubt about its fattening properties; but in poultry it has a tendency to make the plumage soft, and to make the feathers fall. It does not make long during the period of growth.

**SPECIFIC FEATHERS (S. H.).**—We are sorry we are unable by seeing one feather to tell you the breed of the fowl to which it once belonged. It may have been taken from a Grouse Cochin, or a cross-bred Game hen, or from that nondescript a barndown fowl. We are by no means sure it came from a fowl at all. If it did, we should set the bird as of eastern origin. The sharp cut division of colour hardly belongs to our western birds.

**FITNESS OF EGGS FOR INCUBATION (J. C.).**—The eggs may be set within two days of the cock being put in the yard. The next is rather a disputed point, we believe you are safely set all the having. We have hatched eggs that were laid a month after the cock had been removed from the yard. In the case of a hen Turkey confined in a loft quite alone, she laid after being there six weeks, and hatched all her eggs but one. Your last question is another, and we cannot answer it. We are sorry the eggs will belong to the Brahman. Advising you to the best of our ability, we should say if you wish to have pure Dorkings, set only those eggs that will be laid by hens or pullets that have laid none before. They will probably owe their fertility to the Dorking cock, but most of those that form the conclusion of a laying that was begun under the protection of a Brahman, will belong to him.

**CROSS BETWEEN A PARTRIDGE AND A BANTAM (Gibson).**—The cross has never been accomplished. We do not, as a rule, like crosses, but we should be glad for curiosity's sake to see this. Let the birds be together without intermixture. When the hen lays, let her sit on part of the eggs; put the others under another hen. Watch them narrowly for anything that may lead you to suppose you are likely to have produce. If they are in a town, and it is never large, there is no fear of wild Partridges being about. He should be sure, or he will discard his mate.

**POINTS IN BRAHMA POULTRY (J. M. C.).**—We advise you to buy one of the many good books now published on fowls. It gives the exhibition points, which are too long for our space. We will give you the principal. In both sexes, pea-comb, yellow legs, no vulture-hocks, large size. The cock should have a black saddle, black tail, either a black or a white-spotted breast. The hen should be delicately pencilled all over, save the neck, which should be striped black and white.

**HEN WITH HEAD ACHING (G. J. L.).**—The injury will be a long time killing your Brahman, but it will do so, and we advise you to put her out of her misery after a week or two. It is recovery of the sides that causes the fatal injury. Give her a tablespoonful of castor oil twice, at intervals of twenty-four hours.

**BRAHMA POULTRY (H. F. H.).**—The weight of the cock has much to do with the injury, but it is not all. Two pullets are not enough to run with a vicious cock of twelve months. It is recovery of the sides that causes the fatal injury. He must be removed except on rare occasions, which need only be very rare. We cannot solve the question whether one alliance is sufficient, but we believe it is; others deny it. We are certain it was in Turkey, we believe it does in Pheasants. We should have added above, the cock must be removed all the pullets' sides are quite healed.

**VULTURE-HOCKS HEREDITARY (Idem).**—As a rule, the chickens of vulture-hocked parents are themselves vulture-hocked. Poultry defects are more certainly transmitted than their virtues. A merely small fluffy feather curling round the knee joint of a Brahman would hardly be called a vulture-hock. It is the straight projecting feather that offends. If your birds are all vulture-hocked, the only hope you have is to change the cock for one free from the fault. The pea-comb is apparently in one of three combs: the comb has few and blunt serrations; on either side of it is, or should be, the plain and somewhat raised impression of another. This pea-comb should be, as it were, made up of three combs—that in the centre higher than the others, which should appear to be pressed into it till only a raisine-like ridge was left. This comb should be straight and very firm. When it can be accomplished it is better to let the different shades of Dorkings run together, but if by mixing you can get

promise of better shape or greater weight do not stand for colour. Recollect Dorkings are birds of weight and judged accordingly. They are not birds of colour.

**PULLETS DROPPING THEIR EGGS (Hunts Henrich).**—If your pullets drop the eggs from their perches, remove the perches. We know no reason why they should drop them, and do not believe they will continue to do so. It is from being out of order. It is a pity that you destroyed the hen for the sake of the shell, then they get to like them. Putting all things together, we are disposed to think your fowls lack time. Throw down in their haunts some basketful of bricklayers' rubbish, old ceilings, and the like.

**EGG SHELLS VARYING IN COLOUR (Idem).**—It has never been decided why eggs vary so much in colour, but it is so. Three hens of the same breed will lay three different shades. There are those who say it is ruled by the atmosphere, and that the warmer the weather the darker the egg will be. We cannot say, but we think in hot weather the eggs are darker.

**POULTRY JEDGING (Duckwell).**—Your premises are wrong, there is by no means a large per centage of inferior birds shown. In many classes, and numerous ones, an inferior pen is the exception, and the judges have far too much to do to spare time for small details.

**SKY TUMBLERS BRIEF ON THE WING (Nightingale).**—Any birds sent to a strange place will not fly the same as if they had been reared there. The birds ought to be kept as stock birds. Breed, rear, and train the young ones to the premises. We hope to publish next week some notes on breeding, training, and feeding the Sky Tumbler.

**ANTHONY PIGEON (W. H.).**—If you refer to page 138, you will find a portrait of a standard specimen, and a description of the variety for (J. H. and Reader).—Write to Mr. H. Noye, 19, Hingle Road, Birmingham.

**PIGEON WITH STIFF WING (Ada Knowle).**—Most probably your hen Tarbit had wing disease, and it was cured, but the joint remains, and will ever remain, stiff. In a hen bird this does not matter, but it renders a cock bird useless for breeding. It is a pity that you destroyed the hen Marpie, as her case was similar, and the disease is not contagious.

**RULES OF RACING PIGEONS (Will Jones).**—We do not know where these can be procured, but, perhaps, some of our readers may know and will inform you next week.

**BARBS (Amateur).**—The width of skull is seen at the age you mention, but will improve by time. All Barbs require care, but the best to rear for their beauty, we cannot speak as to price or sales. It is best to write to eminent Barb breeders, those who take most prizes. The first point is the breadth, evenness, and bright red colour of the cere round the eyes, the second the shortness of beak, the third the width and form of the head. See Brant's "Pigeon Book."

**MULE CANARIES (C. G. S.).**—There is no difference in the name whether the cock or hen Canary is one of the parents. Your query about a book is too indefinite.

**MAKING IMPRESSED WAX SHEETS (T. Nieb.).**—We do not know where the apparatus for making them can be obtained; perhaps some of our correspondents may be able to give you the information.

**HIVES (R. H.).**—We cannot obtain the information you ask for. The hive you name is not patented.

**GOLD AND SILVER FISH (J. E.).**—No work is devoted to their management, if the water is frequently renewed, a few aquaria in the aquarium, a few shoals of uncoloured meat given daily, and some sand at the bottom of the aquarium; nothing more can be done for them.

### COVENT GARDEN MARKET.—MARCH 2.

With a return of open weather the markets have resumed their normal condition, and have been well attended, first-class articles being in much better request. A few Strawberries have been offered this week at from 4s. to 6s. per doz. The usual consignments from the Continent reach us in good order, and are a great boon, for we should scarcely have any standing to offer without them. The F-rto trade is dull, and large quantities of a very inferior description are offered.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1	0	Malberries.....	4	0
Apricots.....	0	0	Nectarines.....	0	0
Cherries.....	0	0	Oranges.....	1	0
Chickens.....	10	0	Peaches.....	0	0
Currants.....	1	0	Pears, kitchen.....	0	0
Black.....	0	0	desert.....	0	0
Elberts.....	0	0	Pine Apples.....	0	0
Colts.....	0	0	Plums.....	1	0
Gougeons.....	0	0	Quinces.....	0	0
Grapes, Hothouse.....	0	0	Salads.....	0	0
Lemons.....	1	0	Strawberries.....	0	0
Melons.....	0	0	Walnuts.....	1	0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	0	0	Beans.....	0	0
Asparagus.....	1	0	Broccoli.....	0	0
Beans, Kidney.....	0	0	Brussels.....	0	0
Beet, Kid.....	0	0	Cabbages.....	0	0
Broccoli.....	0	0	Carrots.....	0	0
Brussels.....	0	0	Cauliflowers.....	0	0
Cabbages.....	0	0	Celery.....	0	0
Capicatus.....	0	0	Cucumbers.....	0	0
Carrots.....	0	0	Eggs.....	0	0
Cauliflowers.....	0	0	Fennel.....	0	0
Celery.....	0	0	Garlic.....	0	0
Cucumbers.....	0	0	Herbs.....	0	0
Eggs.....	0	0	Horseradish.....	0	0
Fennel.....	0	0			
Garlic.....	0	0			
Herbs.....	0	0			
Horseradish.....	0	0			

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	MARCH 10-16, 1870.	Average Temperature near London.			Rain in last 49 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	h.			
10	Th	Meeting of Royal and Zoological Societies, (8.30 P.M.)	49.1	31.5	40.5	15	38	46	15	41	10	21	41	9	10	27				69
11	F		49.1	32.2	40.7	19	26	6	55	5	56	10	25	2	9	1	11			70
12	S		50.4	32.2	41.3	21	23	6	57	5	48	11	21	3	10	9	55			71
13	SUN	2 SUNDAY IN LENT.	50.4	34.0	42.2	15	21	6	58	5	47	0	13	4	11	9	38			72
14	M	Meeting of Royal Geographical Society, (8.30 P.M.)	51.8	34.4	43.6	30	18	6	0	9	2	56	4	12	9	23				73
15	Tu		50.6	33.6	42.1	21	16	2	6	18	3	33	5	13	9	4				74
16	W	Royal Hort. Society, Hyacinth Show, Fruit, (Floral, and General Meeting).	51.0	34.0	42.5	14	13	6	4	6	41	4	5	6	14	8	47			75

From observations taken near London during the last forty-three years, the average day temperature of the week is 50.3°; and its night temperature 33.1°. The greatest heat was 67°, on the 10th, 1826; and the lowest cold 7°, on the 10th, 1847. The greatest fall of rain was 0.63 inch.

## GROWING PINE APPLES PROFITABLY.

**P**INE APPLES grown with the most approved appliances, if grown well, will pay, though the profit will not be great, if anything at all, in the neighbourhood of London, where coals are more than twice as dear as they are with us; and the expense will be considerably increased with those who advocate a high temperature for Pine Apples. It is, therefore, very desirable, as Mr. Record suggests in his courteous remarks at page 83, that their culture should be reduced to as cheap a system as possible—a result, I think, only to be accomplished in one way, and that is on the principle of “killing two dogs with one stone,” combined with a thorough practical knowledge of Pine-culture, without which failure only may be expected. To those, therefore, who may wish to grow Pines at the least expense, I would say, Adapt your house to grow other things besides Pine Apples, especially Strawberries, Kidney Beans, pot Vines, or Cucumbers. Anyone who goes to the expense of erecting a Pine stove may provide accommodation for some, or all of these, with very little additional outlay, and it is very seldom that those who are ambitious to grow Pines wish to be without the others.

As an example of what I mean, let me describe a Pine pit at Dalkeith, to which I feel sure Mr. Thomson will excuse my drawing attention here. This pit, as far as I recollect, is about 200 feet long, and is arranged in divisions containing Pines in different stages of growth—a most convenient and economical arrangement—and the whole is heated by hot water, top and bottom. It is a lean-to pit, and running the whole length of the back wall were two or three shelves for Strawberries and Kidney Beans. Certainly, the most magnificent sight in the way of forced Strawberries I ever saw was in that pit—a sight which, for anything I know, may still be seen there any spring. Though this house did not afford accommodation for all the Strawberries forced at Dalkeith, still, I believe I do not err in estimating the quantity grown in the Pine pit at from 800 to 1000 ozs. These, estimated at the average Covent Garden prices during March and April, give a figure that would have more than defrayed all expenses connected with the Pines and other things—not to speak of immense quantities of Kidney Beans turned out of the same house, and accommodation afforded for Vines, Chilies, &c., during the summer and autumn months. The house was no larger than was necessary for the proper accommodation of the Pine Apples, leaving a 3-feet path along the back, and was an item of one man's charge.

Having to erect a Fig house here some time ago, I, acting on the above principle, had it made a lean-to, high at the back, narrow, and to admit all the light possible. The Fig trees, instead of being trained up under the roof in the usual way, are trained to a low curvilinear trellis, by which they have nearly as much space as if they had the run of the roof, while a flood of light is admitted to the back wall, on which we can accommodate about five hundred Strawberry plants at one time. As these go out,

Cape Gooseberries are trained up over the shelves, and two crops of Figs are taken off in the season.

Like Mr. Record, I have a hankering after fermenting materials for growing Pines, believing that the plants swell their fruit better on a bed of leaves if well managed, and I would have no objection to use the same materials for bottom heat; but my experience forbids my recommending the old-fashioned hotbed and linings for any stage of Pine-culture, on economical grounds.—J. SIMPSON, Warrley.

## CAMELLIA CULTURE.

I HAVE sent this morning a box of Camellia blooms for your inspection from plants grown in pots, and I send the following remarks as to the mode of culture carried out for producing them.

First, as to drainage, I find the Camellia very impatient of stagnant water; hence the necessity of good drainage. This having been secured, place over the crocks a good layer of turfy loam thinly, preventing the soil passing among the drainage, and also serving as food for the plants.

This having been done, the next need is soil. The most suitable that I have found is the following:—Two parts of fresh turfy sandy loam to one part fibrous peat, well mixed but not sifted. This soil I have found answer every purpose for the well-doing of the Camellia.

As to the season of potting, I have found that the sooner potting is done the better after the plants have begun to make their summer growth, because then the roots are fully active, and will readily send their fibres into the fresh compost; while, if it is delayed till the plants have completed their summer growth, the roots are not so likely to work in the fresh soil. Besides, I think the soil is more likely to become sour, from the fact that the roots have not worked so freely as they would have done had the plants been potted sooner. I think it a great mistake to pot the Camellia too frequently. For established plants once in three or four years is quite sufficient, giving them a liberal shift when it is done; but although I do not agree with potting too often, it is necessary in the meantime to feed the plants with liquid manure at certain seasons, and I find nothing to equal sheep's droppings collected fresh, and allowed to stand in water for a few days. Of course, if the plants have been recently potted, they do not require manure water till the fresh compost is somewhat exhausted.

With regard to shading the Camellia, I find it is highly necessary through the hot months of summer, especially if foliage is considered as well as bloom, and I find it impossible to have the two combined without shading at certain seasons of the year.

As to temperature, much depends upon the demand for bloom; for, although the Camellia will bear a certain amount of forcing, still I think in the blooming season a temperature of 40° to 45°, and from that to 50°, is quite sufficient. A rise of a few degrees in the growing season may be beneficial.—B. GODEOLD, *The Gardens, Chipstead, Kent.*

[We never saw a more desirable collection of cut Ca-

mellies; whether the flowers or the foliage is considered. All were fine and extremely vigorous.—EBS.]

### MORE ABOUT POTATOES.

As this valuable tuber is now again attracting attention, and as I have removed to a fresh locality, I have determined this year on giving a trial to as many varieties that were new to me as I could. I had tried previously a good many, had come to the conclusion that many of them were not worth the trouble of growing, and that with the Ashleaf, Myatt's Prolific, and the Lapstone, one could get on very well, but that a Potato which would follow the latter, and keep on until the new ones came in, was still a desideratum. I must honestly say that I am particular, and that I consider the Lapstone the perfection of a Potato; it is, however, not a large cropper, and will not suit cold soils or cold climates. I have neither the one nor the other. Round Potatoes, unless for some particular purposes, I do not care to grow, but a few have been so strongly recommended to me that I cannot but give them a trial. The following comprise my trial sorts, and I give the sources whence I have been kindly furnished.

- |                   |                      |
|-------------------|----------------------|
| 1, Yorkshire Hero | 3, Early Upright     |
| 2, Gryffe Castle  | 4, Bryanstone Kidney |

The above had been sent to me by my friend Mr. Radclyffe; unfortunately since I had them I have lost several in store by frost, still I have a sufficient number for trial. The first three Mr. Radclyffe has often praised in the Journal, the latter is quite new, as he has stated in last week's Journal; the two tubers I have look beautifully clean and good.

- |                           |                   |
|---------------------------|-------------------|
| 5, Rivers's Royal Ashleaf | 6, Early Ten-week |
| 7, Haigh's Kidney         |                   |

These have been sent to me by Mr. Rivers, and I quite agree with Mr. Fenn, that we must distinguish it by his name still, albeit, the parentage is not his. At Deal I did not like it. This soil may suit it.

- |                             |                       |
|-----------------------------|-----------------------|
| 8, Breesee's Climax         | 10, Ashtop Fluke      |
| 9, Breesee's Early Prolific | 11, Carter's Champion |

These have come from Messrs. Carter & Co. The first two are American. I cannot say that I like their appearance, but they may be better than they look. Ashtop Fluke looks very good.

- |                             |                            |
|-----------------------------|----------------------------|
| 12, Veitch's Early Ashleaf  | 15, Huntingdon Kidney      |
| 13, Shepherd's Early Kidney | 16, Webb's Improved Kidney |
|                             | 17, Coldstream Early       |
| 14, Sultan Pink Kidney      | 18, Mona's Pride           |

Messrs. Veitch & Sons were good enough to send me the above. 12, 17, and 18 I have already grown and condemned.

19, Harris's Nonpareil | 20, Cutbush's Kinglesder.  
These are new to me, and were sent by my friend Mr. Cutbush, of Highgate. 20 I have heard highly spoken of, and it looks like a good early sort.

### 21, Headley's Seedling.

Mr. Headley has left his mark in horticulture; in Auriculas he has raised the very finest we have in George Lightbody; in Tulips he has raised a great many very fine varieties; and as a cultivator he has ever been marked as a foremost man. If the account given of this Potato by Mr. Fryer, of Chatteris, to whom I am indebted for the sample I have, be borne out in other localities, it will enhance Mr. Headley's fame for Potatoes as well as for flowers.

- |                  |           |
|------------------|-----------|
| 22, Beaconsfield | 23, Union |
|------------------|-----------|

These have come to me from Mr. Turner, of Slough; the former seems to be a fine strain of Lapstone, but remains to be proved.

- |                     |                      |
|---------------------|----------------------|
| 24, Early Rose      | 29, King of Potatoes |
| 25, Victoria        | 30, Scarlet Prolific |
| 26, Early Racehorse | 31, Belgian Fluke    |
| 27, Golden Blossom  | 32, Mona's Pride     |
| 28, Early Goodwill  |                      |

For these I am indebted to Messrs. Sutton & Sons, of Reading. Of 24 I hear very conflicting accounts, some saying it is utter rubbish, others that it is an excellent Potato. My friend Mr. Radclyffe condemns it. 25 I cannot like; it may be good, but all I can say is, I have never been able to eat it. 26 I condemned some years ago, but am giving it another trial. Of 29 and 32 I may say the same, but they are on trial again.

My ground is a piece of freshly broken-up pasture of a good

uniform loam, not over-stiff, and I expect and believe it will grow Potatoes well, for it stands high and is, therefore, well drained. There is, as will be seen, no lack of varieties, and I shall be very glad if we can find among them a Potato possessing these qualities—to be as good in flavour as the Lapstone, with a better constitution, and keeping up to the time that new Potatoes come in.—D., Deal.

### ECHITES NUTANS AND ECHITES RUBRO-VENOSA.

*Echites nutans* is a milky-juiced climbing plant with opposite lanceolate leaves, which are generally not more than 3 inches in length, and 1 inch in width. It is well worthy of cultivation on account of its magnificent foliage.

Although this plant has been in cultivation for several years, and may be obtained very cheaply, yet it is very seldom met with, and very rarely do we see well-grown specimens, but when grown well they form charming objects. The foliage is of great beauty, the ground colour being dark green, marked with a network of crimson veins.

*Echites rubro-venosa*.—Of the many fine-foliated plants grown, none that I know equals this in beauty; so exquisite is the network which covers the leaves, that I think it yields to nothing but the most brilliant of the genus *Amnecolus*. Its leaves, of a clear emerald-green tint, are intersected and crossed by minute lines of bright red and gold colour, in the style of the species of *Amnecolus*.

My treatment is as follows:—For soil I get a good fibrous peat, pull it to pieces by hand, and well mix it with some good sandy peat, adding a sprinkling of charcoal and silver sand. The plants do well in this compost. It requires good drainage.

The foliage should never be washed by the syringe or in watering, but the surrounding atmosphere must be kept as moist as possible. Under this treatment the plants grow rapidly. I place a large bell-glass over them to protect them from water. During the middle of the day I shake from too strong sunlight.

They are difficult to propagate from cuttings. I take the thick fleshy roots and cut them about an inch in length; these make plants very freely. I make the trellis to which the plants are trained of small hazel rods the shape of the bell-glass, which it very quickly covers. I place the bell-glass on bricks, so that the atmosphere freely circulates all through the foliage.—F. P. L.

### BEET AS A BEDDING PLANT.

I GIVE my experience of Beet as an ornamental plant in compliance with the request of Mr. Peach, and I hope others will do the same, for I am inclined to think that where Colens will not bed out Beet stands first among red-leaved plants. As it is becoming fashionable, we may very soon look for great improvements in colour; I dare say that three years hence we shall be in possession of varieties with leaves even brighter than the young and central ones of *Dracena purpurea*.

March 20th, 1869, I sowed a packet of Dell's Beet and one of Royal Osborne in boxes out of doors; not a seed of either vegetated. On April 24th I sowed a packet of Royal Osborne, and placed the box in which it was sown on the top of a dung-heap. It came up freely. When large enough to handle I pricked the plants off into pots, placing about six in a 4-inch pot. Early in June I put them in the ribbons and beds; they grew rapidly, and were the admiration of all who saw them. In colour—crimson purple—in form, and in power of resisting both sun and rain, Royal Osborne Beet is all that can be wished for. Iresine planted close to it had to hide its diminished head. You might see your face in the gloss of the leaves. One bed was planted thus—the centre of *Cineraria maritima*, then a double row of Beet, a double row of Flower of Spring Pelargonium, and an outer ring of Iresine. Everybody who saw it thought it beautiful.

One great merit Beet has, is its durability. *Coleus*, *Iresine*, *Ornithogalum*, *Perilla*, vanish—disappear; but Beet holds on till you want your ground for bulbs. When I took my plants up, October 18th, they were as bright as ever. I stored them in sand, and I shall plant them out again in the beginning of April, and expect them to make a magnificent edging to beds of Tulips. They are now sending up a number of lovely magenta-coloured leaves at the crown, and would, I am sure, be beautiful

for silver vases on a dinner-table with anyone who had above heat in which to force them for the purpose.

I hope to raise seed from some of these old plants, for the prices charged by nurserymen are ridiculously high; 1s. 6d. for Royal Osborne, 1s. for Dell's. Last year two or three of my friends procured seed of Dell's; it almost entirely missed. I could see no difference in colour between the few plants that did come up and my Royal Osborne; but as I think it was a little more dwarf, I shall try it again this year.

There is, I know, a prejudice against Beet, on account of its being edible. A great gardener not far from this (my respects to him when he reads this, as I think he will), is very loud in his condemnation of it. He says that if we have to go to the salad bowl for our flower garden it is time to shut up altogether. I do not agree with him. If a thing is beautiful, its being useful also is no demerit in my eyes. I paid him a visit on September 4th, when, in consequence of a sharp frost three days before, his Perilla was sadly shabby, and of course the Coleus would have been worse had he had any of it bedded out; but even then he clung to his theory, and still anathematised Beet. To all brother gardeners I say, with respect to Beet, "*utere tecum.*"—Q. Q.

### POLEMONIUM CERULEUM VARIEGATUM CULTURE.

NOVELTIES for the flower garden are so abundant in these days, that the purchaser is often bewildered, especially if he happens to first consult any of the bulky catalogues so abundantly showered upon him. Amidst all this wealth of new plants it is seldom that any are offered to us possessing such sterling qualities as *Polemonium ceruleum variegatum*; its graceful Fern-like leaves, silvery variegation, and dwarf habit of growth, combine to make it a plant of rare elegance, and peculiar fitness for the flower garden. Its hardiness is also much in its favour, for although it has a decided tendency to become green if left out in winter, yet lifted and potted in October it winters admirably in a cold pit, retaining its variegation, and making fresh growth early in the new year. Then the old stools are divided, and each crown potted singly in light rich sandy soil in pots of a suitable size, again placed in the pit, and carefully watered and shaded till they become established.

Besides its great value in the flower garden, it is useful as a pot plant at all seasons of the year. A few plants introduced in the front rank of conservatory groups, or on plant stages, are certain to be appreciated. Moreover, its pretty frond-like foliage forms capital wreaths for garnishing the dessert, and its medium-sized shoots or crowns mix well with cut flowers.—EDWARD LOCKHURST, *Exington House Gardens, Kent.*

### PEA CULTURE.

On the 20th of November, 1868, I planted a row, 30 feet long, of First Crop early Pea, picked a peck of fully-grown Peas on May 20th, and continued doing so two or three times weekly from this row up till August. I picked a pint of well-ripened seed on July 20th, and after exposing them to the sun for that day, I planted them in another row 30 feet long, and picked a good crop on September 24th, and frequently afterwards up till November 1st. Rain and frost prevented those pods left on the row from ripening, but the haulm remained green till December. The appearance of the row when in blossom was very beautiful, every flowerstalk bearing two blossoms. The height was over 30 inches, but the entire row was as even as a well-cut hedge, showing careful selection in the seed.

As I am always very successful in growing Peas, allow me to give my mode of culture publicity. I throw out to the windward side a spadeful of earth, and in the trench thus formed lay a good coating of manure—pig and cowdung mixed. I have no other, or I would prefer horse dung. This is then well dog in, and a smooth surface made with the spade; on this the Peas are placed, one by one, not less than 2½ inches apart, then covered with sifted ashes, and the earth drawn over that from the leeward side. I find both with early and late-sown Peas that the ridge to windward is a great protection.

I may add that, in order to test the relative merits of Carter's First Crop with Daniel O'Rourke Pea, a row of each was planted. The former was up 3 inches by Christmas, the latter only appeared in the first week in January, and the former was picked and in full yield four weeks before the other;

it being June 21st before I could pick sufficient for a family of nine from the latter, but the quantity produced was very great.

Carter's Dwarf Mammoth Cauliflower is well worthy of so gigantic a name, from the enormous size of the heads. I cut many last summer 8 lbs. in weight, and one bed of sixty plants produced an average weight of 6 lbs. This, too, in a part of Wales by no means famous for fertility of soil.—ALFRED PULLIS, *Gelly Gaer Endowed Schools, Newport, Mon.*

### SOMETHING WORSE THAN AN "ACHING TOOTH."

My friend Smith was sadly troubled with toothache, but the offender was an old friend, and though it didn't give him much rest, he did not like to have it taken out; but Jones advised him to get a brand new set. Signor Paltuski was consulted, and declared that it would be a charming process, that he would be better and briskeer than ever. In an evil hour he consented, and as the new set didn't agree with the few he had left of the old ones he was worse off than ever. Oh! how he sighed over the tooth he had lost, and wished it back again! The Royal Horticultural Society is the patient; Chiswick, our friend "G." says, is the aching tooth; but I rather fancy that the brand new set of ivories, except South Kensington, is far worse than the other, and that when Chiswick is irretrievably gone and the Society weighed down by its debt, it will wish that the aching tooth were back again.—D., *Deal.*

### DOES THE ELM PRODUCE SEED?

Few persons doubt their ignorance of the English Elm (*Ulmus campestris*), but it appears that very few of us can impart intelligence with anything like exactness as to its producing seed, as may be seen by the many different accounts given by really intelligent persons conversant with gardening, who on this question should be at least as much to be relied upon as anyone.

The question of the Elm fruiting in "perfection," as the author of the fact stated, was first mooted in "Science Gossip" for January. I may state by way of parenthesis that the paragraph in which the fact was launched was written in June last, at the time the writer of it saw the Elm in fruit. In last month's issue of the abovementioned periodical "Floral Findings," as it was headed, was cut down by Messrs. Holland and Britten, who made it appear that the *Ulmus campestris* very seldom or never fruited in this country—so seldom, Mr. Holland said, "that nurserymen adopt the troublesome process of grafting it into stocks of the *Ulmus montana*, or *Wych Elm*." This is not, however, I believe, generally the case, as it is easily propagated by layers, and by "J. W. K.'s" account (page 144 of the Journal), the Elm propagates abundantly by seed.

Being interested myself in the matter, I wrote to several whom I thought likely persons to decide the question, but all gave varying accounts, some being apparently, like myself, unable to give information on either side. Although the English Elm is a common domesticated plant, it seems that the most of us have but very little knowledge of its perfecting its seed, and I shall be glad to know, for the argument's sake, whether *Ulmus campestris* really does perfect its seed in England. Apart from ridiculous statements like that contained in "Floral Findings," it would be well were we to investigate carefully such things for our own benefit; if our observations coincide with such facts it is only just to acknowledge them.—G. N.

My attention has been directed to a paragraph upon this subject by "G. N." in THE JOURNAL OF HORTICULTURE of February 17th, in which some remarks that I made in "Science Gossip" upon a paper of Mrs. Watney's are very incorrectly quoted. "G. N." puts the following sentence in inverted commas—which I presume means that I used the words—"and very seldom show any signs of fruiting at all." Now, if "G. N." had referred to my note (and I know he reads "Science Gossip," for I see his initials occasionally as a contributor), he would have seen that I never said anything of the kind. I never questioned the fact of Elm trees fruiting. On the contrary, I spoke of a time of year "when it would be very remarkable if Elm trees had not shed their seeds." I again spoke of "the membranous seeds," and "the bunches of winged seeds." I made this assertion, however, that I thought it was very exceptional for *Ulmus campestris*, not to produce

fruit, but to perfect that fruit. In your number of February 24th, however, "J. W. K." says he has raised young trees of *Ulmus campestris* from seed, and has superintended the planting of them; therefore, I am bound to believe that it does sometimes ripen its seed. Evelyn said so nearly two hundred years ago, but very competent authorities since his time have denied it; and I may also remark that what we now call *Ulmus montana* or *Wych Elm* is the *U. campestris* of old authors. So, I still believe it to be unusual for *Ulmus campestris* to perfect its seed; but if on further investigation the contrary should prove to be the case, I shall be the first to own myself mistaken. What "G. N." is pleased to dignify with the name of "an argument" did not refer to the fact of Elm trees fruiting, but whether "follage and fruit in perfection" could be gathered at the same time, and that so late in the summer as to couple it with flowers of Foxglove and yellow Iris.—ROBERT HOLLAND, Moberley, Cheshire.

## GARDENS AND GARDENING AROUND

### HAMBURG.—No. 5.

AUF BAUSITE BEI NIENSTADTEN—SENATOR GODEFROY.

THIS is an extremely neat, cosy, sheltered, and withal elegant and rich little place. It is, like nearly all the others, close on the river's bank, yet high above it. One is struck on approaching the house by the fine groups and lines of *Quercus fastigiata*, a little-known tree, which grows in the form of the Lombardy Poplar, and is very telling; also of *Thujas*, principally of the common kinds, yet here being in such masses they give an imposing effect. There is also a magnificent specimen of Wellingtonia.

Our notes are confined entirely to the flower garden, time not having admitted of our doing more. The house, as just stated, standing so near the river, much space in front is not allowed for floral decoration, yet here, and a little to each side, a very tasteful half-geometrical flower garden is laid out. The planting, the arrangement of the colours, the health, the vigour, and the fine character of the plants used, render it pleasing in the extreme. Some beds were edged with broad bands of *Lonicera arneo-reticulata*, neatly trimmed, with little tufts of the *Teleianthera paronychioides* dotted in here and there, which had a fine effect. Others were glowing masses of *Pelargonium* and *Verbenas*; and placed as single objects of ornament amongst the flowers were numerous fine examples of *Ricinus*, *Wigandias*, *Solanums*, *Aralias*, &c., which had a most charming appearance. Well grown and judiciously placed thus they have a fine effect, taking off that flatness and tameness which great masses of bedding plants generally have. Amongst these, four splendid examples of *Dracena australis* were particularly noticeable; never have we seen finer, and what a noble plant it is! Conspicuous also were the standard *Fuchsias*, growing and flowering with a vigour rarely to be seen equalled. We often regret the absence of such fine old plants from our own gardens. Forming a hedge, or rather a sort of screen to the belt of shrubs surrounding the garden, were lines of *Fuchsias*, one perfect mass of blossom, and very lovely, the light and the dark flowered kinds being placed alternately. These, we were told, continue in bloom for months, and from their appearance we should think so. For the same purpose also were lines of *Roses*, chiefly *Gloire de Dijon*, which at the date of our visit, September, was one glorious mass of bloom. Throughout the entire place there reigned an air of first-class gardening, everything being well done, and all in the most rude and robust health, reflecting the highest honours on the oberbürger Herr Brackenberg.

### HERR JÜRGENS' NURSERY, OTTENSEN, NIENSTADTEN.

Herr Jürgens is the great landscape gardener of Hamburg; his works are to be seen everywhere. It was he who laid out, planned, and planted the grounds of the Great Exhibition, a model of skill, and a masterly piece of work, greater by far than the exhibition itself, or any part of its contents. Here is the nursery where the greater portion of the plants were grown. At the time of our visit many hundreds, nay thousands of the finer examples of the trees and shrubs had gone to deck the great place, so that we saw the nursery to some disadvantage; yet sufficient of the great stock remained to astonish us. Conifers form a leading feature, there being a large assortment of them. Oaks, Asters, Limes, Planes, and all other ornamental trees occupy a large portion, and an immense amount of care is taken in pruning them, and training them to shape. Many were exceedingly handsome. Some were pyramidal,

others grown as standards, and all had an individuality about them without stiffness. Never have we seen so much care taken at a nursery in the formation of trees.

The greatest feature here, however, and one in which Herr Jürgens has reaped high honours, consists in the training and management of his collection of fruit trees. As a fruit-tree nursery this is celebrated throughout all northern Germany, and deservedly so. In the matter of training we have seen few nurseries to equal it. A great portion of the trees are of large size, much larger than they could be found for sale in this country. It is almost a matter of wonder how they can be made to pay for the great amount of attention required in pruning and pinching from year to year. The most favourite form of training for the Apple and Pear seemed to be what the French call *pyramide aux ailles*—i.e., the trees of pyramidal shape, with the branches trained in regular lines above one another like wings. Some are four-winged, others six-winged. These have a pretty appearance, and seemingly answer well for fruiting purposes. It is a form we have never seen adopted in this country. Here, also, were to be seen lines of cordons of all shapes and sizes, many of them well covered with fruit, but in general the trees here of this form were growing much too vigorously for fruiting purposes.

### THE BOTANICAL GARDEN.

The grounds here are extensive, and have been tastefully laid out, but now all is overgrown, old, out of date, and sadly wants a complete overhaul and renovation throughout. It is unworthy of Hamburg, and unlike all its surroundings. The situation of the garden is magnificent, near the most fashionable end of the town. In the gardens the collections of plants are of great extent, mostly grouped according to some botanical arrangement, which is without effect. We had no opportunity of entering the houses, which are all very old, the doors being locked. In some we could see some fine-folaged stove plants, and in two low double-glazed houses there was apparently a fine collection of Orchids in good health. Seeing that the talented director of these gardens, Herr Reichenbach fils, is the greatest orchidologist of the present age, we were glad to find him in possession of such a fine lot. It is a thousand pities, however, to see this garden suffering from want of funds, where so much could be done by such a director.

### THE ZOOLOGICAL GARDEN.

This is situated at no great distance from the Botanic Garden, and in regard to keeping, condition, and appearance, is a marked contrast to the former. This garden is of modern formation, having been laid out only a few years ago by the indefatigable Herr Jürgens. Formerly it was a rough wild waste; now it is one of the most pleasing and enjoyable of spots, having been laid out with consummate taste and skill, beautifully diversified with trees, and rockwork, and water, and particularly well adapted for its intended purposes—for the homes of the wild animals, and for the holding of concerts and illuminations for the gratification of the nobler animals of Hamburg. The collection of animals is very large and fine, presenting fully a nobler appearance than those at Regent's Park. The arrangement of their places, the cleanly keeping, and the beautiful order throughout, render it a place of delightful resort. Lastly, we would note the magnificent collections in the fresh and salt water aquaria, which are of the most interesting nature here, and very extensive. We have often wondered why in this great and mighty London of ours, we have no interesting collection of this sort. A little there may be, but nothing like what there might be, or should be, or which we hope will yet be; for anything more interesting does not exist in nature.

These notes (now finished) on the gardens round Hamburg, include but a small portion of what is to be seen round this interesting old city. We could not, much as we wished, visit all, and to the few we did visit we fear we have been able to do but scant justice.

### CHAPMAN'S CUT-FLOWER PACKING CASE.

The best testimony which we can give to the merits of this invention is that Mr. Charles Perry, of Castle Bromwich, the well-known grower of Dahlias, *Roses*, and *Verbenas*, was so pleased with it that he at once ordered a set for exhibiting flowers. "D. Deal," and some others of the first florists and exhibitors in the country, to whom the contrivance has been submitted, have approved of it highly. The model has been sent per rail over long distances, and the flowers have invariably

been received with their freshness and bloom unimpaired, and not a drop of water was found spilled. The flowers are placed in water and secured firmly in an upright position, and whether the case is placed on its side or bottom upwards, when it is closed, they suffer no injury, and no water escapes. Further particulars may be seen in our advertising columns.

### HARDINESS OF PLANTS IN SOME PLACES.

I ENCLOSE a twig of a species of *Fuchsia* cut in the open air February 26th at Colwyn, in North Wales. Can you tell me the specific name?

There is something singular in the way many tender plants, such as Zonal Pelargoniums, *Veronica speciosa variegata*, and this *Fuchsia* (which, however, is evidently much harder than any of the varieties usually grown, and of which there are several close to it), have survived the recent cold weather, in which such hardy plants as the common single Wallflowers only a few feet from the Pelargoniums have suffered severely. Up to this last frost none of the abovementioned plants had been at all injured, although the thermometer had registered 11° of frost, but the accompanying north-east wind of the 13th ult. has scorched the leaves of most of them, though without killing the plants, except in the most exposed situation. The thermometer has also on this occasion been as low as 19°, and nearly all the older plants of Wallflower present such a melancholy appearance that I have pulled them up.

Now, what is the cause of this? In my garden here (Chester) 6° or 8° of frost will effectually dispose of my Pelargoniums. Colwyn is certainly on the coast, and the winter temperature is, of course, somewhat higher than here; but even 11° of frost, to say nothing of 13°, would have destroyed very much harder plants than Pelargoniums. Is it the salt or the moisture in the air, or the dryness of the soil, which is a decomposed clay slate (Wenlock shale), and full of stones, causing the plants to make short hard growth, instead of long juicy shoots? My own impression is that the latter is the cause, but why do the Wallflowers suffer so much? They are certainly rather more exposed, but very little, and the soil has hitherto seemed to suit them remarkably well. The garden is about three-quarters of a mile from, and about 100 feet above, the sea.

If you think the above of sufficient interest to be worth publishing, I shall be glad if any of your correspondents will give their opinion and experience on the subject. By-the-by, it is right to mention that the garden is on a sharp slope to the E.S.E., all the plants mentioned being on the same level, and a hill opposite partly breaking the force of the wind.—ALFRED O. WALKER.

[We mentioned lately some very singular circumstances as to plants withstanding cold, although others generally more hardy gave way. In your case, we think the dryness of the soil and the stunted character of the growth had much to do with the *Fuchsia* keeping its foliage. It is *Fuchsia microphylla*, and it is not usually so hardy as some of the other species.]

### ENTOMOLOGICAL SOCIETY'S MEETING.

THE second February meeting of this Society was held on the 21st ult., the President in the chair. The two following celebrated continental entomologists were elected to supply the two vacancies in the very limited list of honorary members—namely, Professor Schiodte, of Copenhagen, and Professor Von Siebold, of Munich.

The Secretary exhibited a specimen of the migratory Locust, taken in Yorkshire, and Mr. J. Hunter a specimen of a *Plusia*, captured in the New Forest by Mr. Stock, and supposed to be the P. ni, a rare continental species; a figure of the insect had already appeared in the "Entomologist's Annual."

Mr. Albert Muller exhibited some heads of the flowers of the common Tansy (*Tanacetum vulgare*), several of the florets of which were abnormally developed and elevated, forming a kind of calyx-shaped gall, produced by the puncture of a Dipterous insect, probably belonging to the genus *Trypeta*, as the enclosed larva did not exhibit the peculiar formation of the Gall midge larva of the genus *Cecidomyia*; the whole floret had become hypertrophied, and at the same time the stamens, style, and ovary had entirely disappeared. Mr. Muller stated that hitherto he had not been able to find any kind of galls on the species of *Orchidaceae*, and the Ferns seemed equally free from their attacks.

Mr. Pascoe exhibited specimens of a singular minute Beetle from Australia (*Nephrolepis alata* Castellan, recently republished by King under the name of *Hiketes thorensis* in the "Transactions" of the Entomological Society of New South Wales, the publication of which has recently been resumed. Mr. Pascoe considered the real affinity of this curious Beetle to be near *Monotoma*.

A long discussion took place amongst the members on a question of zoological nomenclature, arising from the correction of a generic name (*Biaris*), having a false orthographical formation, which had resulted in the corrected form *Diaris* becoming a synonym, the latter name being already employed in another family.

Mr. A. G. Butler read a paper "On Butterflies recently received by Mr. Swanzy from West Africa," including several new species belonging to the genera *Romaleosoma*, *Philognoma*, and *Mycalis*.

### FEBRUARY AND ITS CONSEQUENCES.

THE old proverb says—

"February fill dyke, be it be black or be it white,  
But if it be black, it's better to like."

Last year the month of February was remarkably warm, this year it has been remarkably cold. During the past month the winds have been piercingly cold and from every point of the compass, with some of the most sudden changes in the temperature that could possibly be. At times there was sharp frost, driving showers of hail, rain, snow, or sleet. For several days together the wind was blowing very fresh from east-north-east, with dry frost and showers of hail, in many places blowing the soil with the dry snow into the roads and ditches in a very peculiar manner, in some parts the ground had melted, leaving quite a bed of soil when the snow had melted away.

Vegetation has suffered in many places to a very great extent; to all appearance Wheat has suffered very much, Cabbage plants in many places appear to have suffered very severely, but the greatest destruction is among Lettices and Cauliflowers. Of Broccoli, as Snow's and Backhouse's Winter Protecting, many becoming fit for use have been destroyed where not protected. Onions have suffered considerably. Endive has been partially destroyed. Broccolis and Kalees have suffered very much; Silver Beet and Spinach, too, have the appearance of being scorched. The late spring Broccoli have a miserable appearance; but I hope they will in some measure recover. Hollyhocks and many border plants are very much cut up, and some, I fear, are altogether destroyed. Fruit trees are well set with bloom, and up to the present time they have been well kept back. I trust to their advantage afterwards. Some of our old weather prognosticators tell us we shall have no better weather yet, but I hope for the best.

The few plants in beds and borders that were attempting to cheer us with their varied colours have in most instances been ruthlessly swept away, yet those enumerated below I noticed as interesting.

- |                                 |                               |
|---------------------------------|-------------------------------|
| 4. <i>Rhododendron dauricum</i> | 11. <i>Linum flavum</i>       |
| <i>Galanthus aivalis</i>        | <i>Doronicum caucasicum</i>   |
| <i>Erica carnea</i>             | <i>Primula scutellaria</i>    |
| <i>Daphne Mezereum</i>          | <i>Viburnum Tinus</i>         |
| <i>Belle perennis</i>           | <i>Chiranthus frutescens</i>  |
| <i>Erantibus hymalis</i>        | <i>Taxus baccata</i>          |
| <i>Cydonia japonica</i>         | <i>Forsythia viridissima</i>  |
| Double White Daisy              | <i>Pulsatilla officinalis</i> |
| <i>Corylus Avellana</i>         | <i>Daphne Laureola</i>        |
| 11. <i>Helleborus niger</i>     | <i>Anemone hortensis</i>      |
| <i>felidus</i>                  | Double Primrose               |
| <i>Ranunculus Ficaria</i>       | <i>Viola odorata</i>          |
| <i>Crocus Sieberi</i>           | <i>Trisulcus</i>              |
| <i>Ulex europaeus</i>           | <i>Heptatica triloba</i>      |

—M. H., Achlam Hall, Middlesbrough-on-Tees.

### GALLS.

A CORRESPONDENT enclosed to us galls from three different trees, and although not many of our readers would call them as she does, "fruits," yet as she asks for relative information, we string together some extracts from various works which are upon our library shelves.

Galls are morbid excrescences, originating from the most vigorously growing parts of plants, in a consequence of the attacks of insects, chiefly of the Hymenopterous order, and of the genus *Cynips*. The parent insect is provided with a sharp sting, serving to perforate the branch, leaf, or bud, in which its egg is to be deposited, and in some cases the puncture made is very deep. As soon as the egg is hatched, the young larva or maggot, stimulating the vital principle of the plant, causes the part in which it is lodged to assume a great degree of luxuriance, displayed in various whimsical excrescences, foreign to the nature of the plant in itself, but each appropriated to the particular kind of insect from whose operations it springs. The original perforation is soon closed up and entirely obliterated. At length, the maggot, having fed on the juices of the plant, copiously directed to the injured part, undergoes its changes to chrysalis, and, finally, to a winged fly, like its parent, when it immediately escapes from its confinement by a fresh perforation, and the gall, being left empty, soon dries or hardens. The main stems of some of the large shrubby kinds of Hawthorn, *Hieracium scandens* and *umbellatum*, are often thus stung, and swell into oval knots, in which, while growing, young insects may be found latent. The two British species of Oak bear several different kinds of gall, as the light spongy bodies vulgarly named Oak Apples, growing from the stalks of the leaf or flower

or from the young twigs; and a red juicy berry-like excrescence, resembling a Cranberry, from the leaves, which is well figured, with its insect inhabitant, in Roessel's work on the transformations of that tribe of animals. The astringent galls brought from the Levant for the purposes of dyeing and making ink, are the produce of an Oak.

Several galls are found on Willow and Poplar leaves; but the most remarkable excrescence of this kind is the Bedeguar, or mossy ball found on the Dog Rose of our hedges, each specimen of which lodges internally numerous maggots of the Cynips Rose, which, when they arrive at their winged state, eat their way out. After this, and not before, various perforations may be found in the Bedeguar, which soon afterwards withers and dries. Analogous to this sort of gall is that found on Willows in Provence, which branches out like a moss, or tufted Lichen. Nor is the rosaceous expansion at the end of each branch of the Rose Willow, *Salix helix*, at all different in nature, though unlike in shape. Both these last described are permanent, though withered, on the twigs, long after all the proper leaves are fallen. More akin to the galls of the Oak are those of several Sages in the Levant, *Salvia pomifera*, *triloba*, and *officinalis*, which resemble little apples and are sold in the markets of Crete in particular, being esteemed a delicacy when prepared with sugar. Some bodies of the nature of galls lodge in one common cavity of growing insects, witness those remarkable ones, as big as the finger, found in the south of Europe on the *Pistacia lentiscus*. These are very red, of a coriaceous texture, and swarm internally with the *Aphis* *Pistacee* of Linnaeus. — (*Rees's Cyclopaedia*, vol. xv., "Galls.")

*Quercus infectoria* is a small shrub, growing abundantly in Asia Minor. It is on the young shoots of this shrub that the gall nuts of commerce are produced. They are caused by a small insect, *Diplolepis gallinctoria*, the female of which punctures the young growing shoots and therein deposits its eggs, which occasions an extravasation of the sap and a cellular swelling of the part, which continues to increase in size. The egg in course of time produces a larva, which lives upon the interior of the gall, until, being transformed into a fly, it eats its way out by a small round hole, as may be sometimes seen in galls. But to have galls in the highest perfection, they should be gathered before the egg is hatched or the fly has escaped; at this period they are of a dark colour, and are hence called blue, green, or black galls; but if allowed to remain longer, they lose their dark colour, and are then called white galls. Galls are powerfully astringent, and are employed in medicine and in the arts; they form an important ingredient in the making of writing ink, and are employed as an internal remedy in chronic diarrhoea and chronic dysentery; and also as an astringent gargle; formed into

a ointment, they serve as a useful external application to hemorrhoidal affections. By analysis, galls contain 65 per cent. of tannic acid; 10.5 of lignin; 5.8 of gum, sugar, and starch; 4.0 of gallic, ellagic, and luteo-gallic acids, and 11.5 of water, besides extractive, chlorophyll, volatile oil, albumen, and salts. — (*Hogg's Vegetable Kingdom*.)

We subjoin some drawings of Galls.

Galls are of two kinds, called respectively galls and cases. Galls are more or less solid or ligneous, and contain one insect. Cases are hollow and horny, comprising a colony of insects.

Levant or nut galls, *fig. 1*, are produced as already stated in the buds of *Quercus infectoria*, a native of Asia Minor. They are imported from Smyrna and Aleppo, and sometimes from Bombay. They contain about 30 or 40 per cent. of tannic acid — the astringent principle which converts the gelatine of skins into leather in the process of tanning. Galls, however, are not suited for this purpose, because they possess so little extractive matter, rendering leather hard and crackling.

Gallic acid is another important constituent, amounting to not more than 3 or 6 per cent. In the preparation of ink or black dye,

a persalt of iron is added to an infusion of nut galls, which combines with the acid above-named, to produce the black tannogallate of iron.

British Oak galls resemble *fig. 1*, but are larger and of a much lighter colour.

Mecca galls, Dead Sea Apples, Sodom Apples, or Mad Apples, *fig. 2*, are occasionally imported from Musarah. They are produced on a variety of *Quercus infectoria* by the *Cynips infectoria*. These galls, according to the Honble. R. Curzon, who brought them from the Holy Land in 1847, are like a beautiful fruit when fresh,

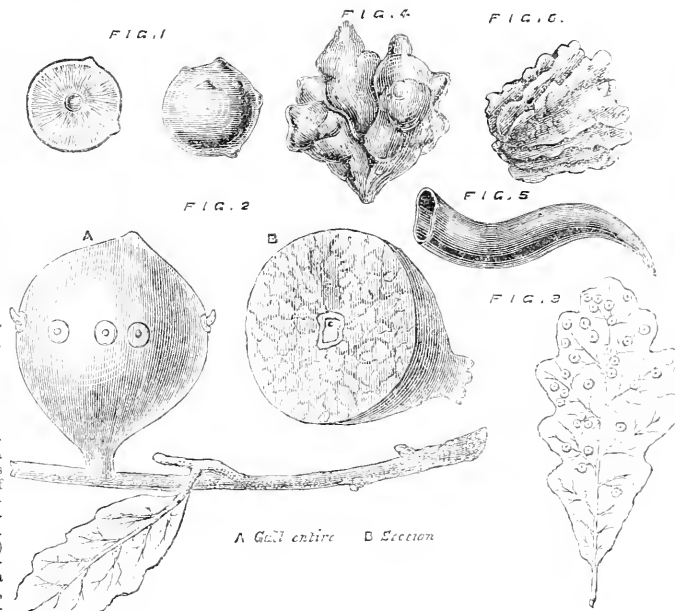
are of a fine purple colour, and shine brilliantly in the sun, as it much less value than those from the Levant.

Oak spangles, *fig. 3*, are galls formed in the substance of leaves, and ultimately burst through and appear like flat discs on the surface.

Chinese or Japanese galls, *fig. 4*, known in China as woot-peit-tee, are leaf galls, or cases which contain a colony of insects. They are supposed to be produced by a peculiar species of aphid on a terebinthaceous plant.

Kakrasinghee galls, or cases, *fig. 5*, are from the Himalayas. Acorn galls occur in some parts of Europe on the *Quercus pedunculata*, being produced in the Acorn by *Cynips quercus-calyceis*. These are known in Germany as knopfers, where they are used by dyers instead of the Levant galls.

Eln galls are the size of the fist, and do not contain any astringent, but a sweet and viscid fluid. They abound in the south of Europe.



A Gall entire B Section

The baignon, found on a species of Sage in the East, are gathered and sold for food. They are sweet, and said to make a famous sweetmeat with sugar or honey.—(*English Mechanic and Mirror of Science*.)

### SULTAN PINK KIDNEY POTATO.

In reply to "G. B.," I purchased a quantity of the Sultan Pink Kidney from the raiser, Mr. Rackham, last season. I sold part, and planted about 1½ bushel myself in good soil. My crop was fair, but nothing equal to the description given of the variety, and when boiled the tubers were very close and waxy. Only last week two gentlemen who purchased from me were complaining of them. The remark one of them made was, "Those Sultan Potatoes you sold me are very bad; when boiled they are like soap."—J. KITLEY, *Seedsman, Ecclestone*.

In answer to "G. R.'s" inquiry respecting this much-valued Potato, I purchased some of the raiser last season, and as soon as received cooked a few for trial, and found them very close, yellow, and of a strong earthy flavour. I, however, planted one bushel and obtained a very fair crop of good-sized handsome tubers, but of the very worst quality possible—so bad that they were at once consigned to the pigs.—FREDK. I. GADD, *Salvington Nurseries, near Worthing*.

### MACHINE-WORKED VENTILATORS.

As Mr. Pearson cannot show the machinery by which he lifts the ridge of his new heated frame, I here enclose you two plans which may prove useful to some of your readers who may have been disappointed at not being enlightened on this point.

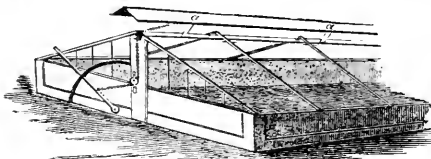


Fig. 1.

Fig. 1 is wrought by a lever and rope, or chain passed over two pulleys. The ridge ventilator is supported by two iron plates, 1 foot long, *a. a.*; they are fixed by means of iron bolts through their ends, so as to work as a sort of double hinges.

Fig. 2 would be a more expensive plan, as so much iron is required to make a good job of it; but a ridge of 100 feet can be raised by this plan, with a good large crank on the end of the rod on which the notched wheels are fixed.



Fig. 2.

Is there much that is original in the "new heated frame"? In the autumn of 1865 (November, if I am not mistaken), there appeared in your pages a sketch of something similar, the differences being that they were termed "pits," and bottom heat was applied. This article was by "A JOUENETMAN."—B. J. G. P.

### GROWING POTATOES ON THE RIDGE-AND-TRENCH PLAN.

In my experience of this valuable system of Potato cultivation is of any advantage to "POPAN," (see page 113), he is welcome to it. On a light, deep soil I find no increase in produce by the ridge plan over the level system of planting, the rows in each case being the same distance apart. On a light, shallow soil the value of the ridge over the flat system is very decided and unmistakable—a natural result of the increased depth of soil gained. On a strong, heavy soil the ridge plan nobly sustains its supremacy. I had a better yield on the level manured soil from the ridges unmanured than on the level manured. I have not tried the heavy soil by this test, though I have little doubt the ridge plan would hold its own. A garden which would grow nothing but green crops, and Potato tops 6 feet long, nearly tuberless, on the level plan, has on the ridge plan pro-

duced a capital yield of Potatoes. Generally speaking, I feel it bordering on presumption to add anything on this matter to the far greater experience and thoroughly reliable testimony of Mr. Penn; but in his reply to "POPAN" he distinctly states that the plan on light soil is beyond the pale of his experience; hence these supplementary notes as to this particular soil, and confirmatory of the general excellence of the principle of planting Potatoes on ridges.—J. W.

### WAYSIDE JOTTINGS.—No. 4.

I was obliged to conclude my last paper (see vol. xvii., page 520) rather hurriedly, and without completing my "jottings" for the day. Before descending from the elevated ridge of Millstone Moor, I sat down to rest awhile on one of the many projecting pieces of limestone rock which crop out at intervals above the surface along the crest of the hill. The gentle breeze that prevailed was really invigorating—the more so, perhaps, that I had suffered from the sultry atmosphere which prevailed in the narrow lanes by which I had mounted to my present elevation above the valley of the Ellen. The prospect was indeed an extensive one. Directly in front, in a south-east direction, and apparently some half-dozen miles away, was seen the majestic form of Skiddaw towering like a giant over the heads of his neighbours grouped around him in every imaginable variety of form. Some of the peaks seemed quite sharply pointed; others, again, presented the form of hummocks more or less rounded or flattened. Occasional gaps or openings were also visible, at the bottom of which, though shut out from actual view by intervening elevations, I knew there nestled some of the most picturesque and lovely of our northern lakes. Behind me, to the northward, lay the waters of the "brimming Solway," as the Frith was once happily styled by the late Earl of Carlisle, and on the opposite shore rose the mountains of Kirkcubright and Galloway, the loftiest being Criffel, near the mouth of the Nith, the rival of Skiddaw.

Having fully satiated myself with the beauties of this charming prospect, I descended at first on the northern side towards the village of Gilcrux, and in some fields, the soil of which seemed of a clayey and anything but fertile character, I found, to my surprise, a very large quantity of *Primula farinosa* (the Bird's-eye Primrose) growing promiscuously over the field. I had always accustomed myself to look upon this pretty little plant as peculiar to the boggy meadows of the lake districts, and its presence here in each plenty was a surprise to me. I well remember my boyish efforts to introduce this gem of the meadows into a little corner of my father's garden, which I had been permitted to appropriate for my juvenile experiments in horticulture. Notwithstanding a long course of artificial watering, and careful filling up of the bed with the boggy soil in which I found it luxuriating in its natural wildness, I could never succeed in preventing it from degenerating, and assuming a sickly hue, indicative of anything rather than the improvement I proposed to myself to effect in its appearance by cultivation.

I next made a cursory examination of the southern face of the hill, but meeting nothing worthy of notice, I started on my way towards the village of Blinderake. In a narrow lane leading from the farm of Millstone Moor towards the Cocker-mouth highway I found a profusion of *Asplenium Adiantum-nigrum* (Black Spleenwort) growing from the bottom of the wall on one side of the lane. At the village of Blinderake, among some dry walls surrounding the numerous little crofts belonging to the villagers, I found a fair sprinkling of *Saxifraga tridactylota* (Rue-leaved Saxifrage), a plant sometimes found in considerable quantities on some of the very old sandstone roofs of out-buildings in many parts of Cumberland. The day had by this time reached high noon, and the temperature of the atmosphere was sufficiently warm to prompt me to seek shelter from the sun's scorching rays by plunging into the woody ravine which stretches away from the village towards Isell, and the Derwent, not without some expectation of a good find in so promising a locality. As I advanced the ravine grew deeper, and its bottom more rugged. On reaching the bottom I found the edges of the little brook fringed with a profusion of *Ranunculus acris* (Allium urinum), the smell of which when crushed by my boots was not very agreeable. Springing from the clefts of the rock on either side were some fine specimens of *Polystichum aculeatum* (Prickly Shield Fern), the fronds of which hung in a drooping fashion peculiarly graceful.

In the very deepest of the glen, where the brook formed a

pool of moderate size, a wild duck rose from its surface, and startled me by the loud clapping of her wings; the sound being intensified, probably, by the solemn stillness which prevailed around me. Her little brood dived at once to the bottom, so muddying the pool as to be invisible. I did not care to disturb the ducklings, and so made the best of my way towards the high road from which I had deviated. A patch of Veronica, noticeable for the pallor of its light blue flowers, grew by the path. Attributing the paleness to the want of sunshine in this *lucus iners*, I did not stop to examine it, supposing it to be the common *Germander*. A few yards farther on I stumbled upon a larger patch, but in this instance bright blue blossoms were intermingled with the almost white ones referred to. A closer examination revealed to me the fact, that the plants represented two species of Veronica—viz., *Chamedrys*, or *Germander Speedwell*, and the less common *V. montana*, or *Mountain Speedwell*, and that the colours were not influenced, as I had previously imagined, by the absence or otherwise of the sun's rays.

I am afraid that the patience of your readers may be exhausted, as I must confess my limbs were wearied, by this long ramble on a hot summer's day.—H.

## DURABILITY OF TIMBER UNDER DIFFERENT MODES OF TREATMENT.

ALTHOUGH the preservation of timber in particular positions is a question belonging rather to the architect and mechanic than to the gardener, yet there are cases where the latter is equally interested, and hints taken from the means adopted by large public bodies for maintaining the durability of their structures may be worked into practice on a smaller scale; and, as public attention has of late been much directed to this and kindred matters, we cannot be surprised at the number of methods proposed by those who are anxious to achieve fame. Fortunately, however, for the public, the shortcomings of every mode proposed are so closely scanned by those who have a rival plan, that none not based on good principles is likely to meet with extensive adoption; but a longer time is wanted to test the value of inventions of this kind than that of most others, therefore a hasty conclusion cannot well be arrived at, unless it be an adverse one. Of course there are some difficulties in arriving at a just conclusion, but a rough guess may be made in most cases; at the same time it must be admitted that the most learned and enterprising have also their difficulties: witness the many methods adopted in endeavouring to send the surplus beef and mutton of Australia and South America to England in a condition suitable to the requirements of this country; and although perfect success has not yet been attained, there is every hope that it will be so ere many years, or even months, shall have elapsed. The preservation of some of our important buildings has also attracted attention, and the chemist has been called in to assist in repairing the oversights of those who ought to have paid attention to them a few years sooner; but the durability of timber has been a subject the importance of which dates back much further than it is easy to ascertain, but it is questionable whether the means always taken for that end were successful or not. I have long held that the advantages of oil paints as preservatives have been over-estimated, and I may go a step further than this, and venture an opinion that they have in some cases promoted early decay. Without discussing this subject for the present, as in many cases the paint brush cannot be dispensed with, I will make some remarks upon the preservation of timber by other processes.

In that excellent journal devoted to architectural and engineering works, *The Builder*, a report is given of some interesting experiments made with several kinds of timber, prepared in three different modes, and the same kinds of timber used in an unprepared state, excepting so far as being dried in a shed. It appears that scantlings of various kinds, all of a size, were prepared in the manner described below, and sunk in still water in Plymouth harbour. After being there about two years and a half they were taken up and examined, and the condition of each was found to be as stated below. The kinds of timber so experimented upon were Quebec Yellow Pine, Quebec Red Pine, Memel timber, American Oak, American Elm, English Oak, English Elm, and English Beech, some Swedish timber, and Pitch Pine. Samples of each of these ten kinds of timber had been operated upon by each of the three processes, and a sample of each was also

submerged in an unprepared condition. The modes adopted were—

1, *Crescoting*.—The timber was dried under a shed, then crescoted under a pressure, from forty-five to fifty gallons of oil to the load being absorbed.

2, *Kyanising*.—The timber was dried as above, then steeped in a solution of corrosive sublimate during twenty-four hours for each inch of thickness; 3 lbs. of sublimate for each load of timber (of 50 feet) being used.

3, *Sulphate of Copper Process*.—Timber for this was also dried as above, then steeped for fourteen days in a solution of sulphate of copper, 1 lb. to eight gallons of water being used.

4, *Timber unprepared* was also dried as above.

It will easily be perceived from the foregoing, that processes Nos. 2 and 3 are by means of strong mineral poisons fatal alike to both vegetable and animal life, and as the experiments were made with a view to test their advantages for nautical or dock purposes they are not of so much value here; but No. 1 being a process which under another form is in such extensive practice in this country, Kent, to preserve the hop poles, and which may with advantage be used elsewhere, I have added the other experiments to show the result. At the same time I may state, that the kyanising process has been tried in building and in many other ways, the object being to prevent the dry rot and other evils to which building timber, furniture, &c., are subject, the impregnation of poisonous matter being supposed to render the wood proof against the attacks both of the vegetable and animal creation. Whether it has really proved so or not is a question I am not prepared to answer, but thirty years ago the process was in great repute, and I recollect some railway viaducts of great length formed by arches the timber of which had been subjected to this process, as well as the longitudinal timbers and cross sleepers on which the railway itself was laid, the latter, of course, laid in the ground; but how it answered I am unable to say. Certainly I had at the time sufficient experience with it in a small way to lead to the belief that it did not tend much to promote durability in timber placed in the ground, but for building and nautical purposes, where animal and vegetable life exercise such a destructive influence on timber, it is possible its advantages may be greater, and from the experiments reported on in *The Builder*, it would seem that its utility was superior in most cases to the sulphate of copper preparation, of which I have not had any experience. The crescoting process differs from both, as will be explained hereafter.

I will now state the results of the experiments as briefly as possible, and leave the very important matter of dealing with hop poles, so as to quite double their durability, till another opportunity, at the same time it may be stated that the merits of crescoting stand out prominently.

Taking the reported condition of the ten kinds of timber under trial, the following were the results:—

*Crescoting*.—All the ten kinds operated upon are reported to be perfectly fresh and sound.

*Kyanising*.—Seven of the kinds are reported perfectly fresh and sound, two slightly worm-eaten, and one much more so.

*Sulphate of Copper*.—Only one kind (English Oak), is reported in a perfectly fresh condition, six others are but slightly affected, and three rather badly so by being worm-eaten and the clinging of weeds.

*Unprepared Timber*.—All the kinds are reported injured more or less, one-half of them but slightly so, the others to a greater extent. Even English Oak has not escaped, although it is reported to be in as good a condition as anything.

From the above it will be seen that crescoting is the most successful of the processes tried. I hope at some early day to call your readers' attention to its uses in another form, and one that will commend itself to all who have out-door fencing and similar woodwork to deal with. Its use, by what is already done in Kent, will certainly not be confined to nautical or river-side purposes.—J. ROBINSON.

(To be continued.)

## NOTES AND GLEANINGS.

INSTRUCTION IN SCIENCE AND ART FOR WOMEN.—Professor Oliver will commence his lectures "On Botany," which terminate the present series, to-morrow, March 11th, at 11 a.m., in the Museum Theatre, South Kensington. Tickets may be obtained at the Catalogue Sale Stall, South Kensington Museum.

—The Duke of Buccleuch, President of THE ROYAL HORTICULTURAL SOCIETY, has nominated the following gentlemen for

Vice-Presidents of the Society for the present year—viz., H.S.H. The Prince of Teck, The Bishop of Winchester, Lieut.-General Hon. C. Grey, F.R.S., and W. Wilson Saunders, Esq., F.R.S.

—The Council of The Royal Horticultural Society have awarded a silver medal to Miss E. A. Ormerod, Sedbury Park, Cheshire, for her contributions of insects to their collection illustrating economic entomology.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

Clear off old stumps of Coleworts, Brussels Sprouts, Savoys, and Broccoli. Plant out Red and early varieties of *Cabbages*; keep the hoe going amongst the plantations made in autumn, and amongst the Winter Spinach. See that a good breadth of American second-early Potatoes is now planted. Protect Ash-leaved Kidneys and other early varieties as soon as they appear above ground. Sawdust is as good as anything, and it can be raked off when all danger of frost is over. No principle of any importance is involved in the cultivation of the *Carrot*, on which that of Turnips, Beet-root, or any other of our green crops does not also depend. There are, however, peculiarities in the cultivation of the *Carrot*, arising from the character of the seed, the shape of the root, and the early period at which it must be sown. We read and hear of the *Carrot* crop requiring no manure, which the authorities for such statements account for by the depth to which, as it is stated, these roots descend for nourishment. It may be safely admitted, however, as universally true, that all crops require manure, and especially those which we expect to yield well. The ground should be trenched 18 inches deep, and the manure placed in the bottom of the trench; the seed to be sown in drills 12 or 15 inches apart. It is an advantage to make the seed germinate as soon as possible, and therefore it is well to mix the seed and sand together four or five days before sowing, and to damp them a little, so as to swell the seed and partially to sprout it. Do not wet the mixture; merely damp it, so that on squeezing a handful it shall preserve its form and not crumble on opening the hand. Now is also a good time to sow *Parsnips*. The cultivation of the *Parsnip* resembles that of the *Carrot* in every essential point. The land should be prepared as stated for the *Carrot*. Especial care should also be taken to have a deeply-cultivated soil. Sow all *herbs*, as *Thyme*, *Mint*, *Sage*, *Winter Savory*, *Sweet Marjoram*, and *Sweet Basil* in *heat*. Cover up with litter all slopes of early *Radishes*, *Horn Carrots*, &c., whilst the sun shines, about three o'clock, and water them once a-week with tepid clear manure water.

### FRUIT GARDEN.

Protect fruit trees in blossom by all possible means. Straw ropes, mats, canvas, bunting, fir boughs, and fronds of ferns should all be in requisition. As soon as you have finished nailing the Peach trees, mix sulphur and soft-soap water to the thickness of paint, and draw a band of the mixture between the shoots in all directions. This, done once, will secure the trees thoroughly from red spider for twelve months. Proceed with grafting, following the order in which the buds break. Top-dress Strawberry beds with rotten dung or leaf mould if not done in the autumn. Plants forced one year and planted out produce the largest and finest crop of this delicious fruit. The British Queen, Myatt's Pine, and other shy-bearing sorts, rarely fail in producing a crop by this system.

### FLOWER GARDEN.

A collection of the best hardy annuals should now be sown: they are of most service and most esteemed before the gay masses of *Verbenas*, *Pelargoniums*, &c., come to perfection. When a frame or pit is at liberty we would recommend their being sown in small pots in loamy soil, and not turned out until they are slightly pot-bound; the flowers then gain the predominance, and the great proportion of these above the leaf constitutes the chief beauty of many annuals. They are also more easily protected from slugs. Let *Dahlias* be placed in heat at once for propagation.

### GREENHOUSE AND CONSERVATORY.

Potting will now be a matter of daily occurrence, and on the mode in which this is performed will depend the future success of the plant. I need say little here about the propriety of using fibrous soil, or about thorough drainage: these matters are now tolerably well attended to, but a few words to the amateur may be acceptable as to the best mode of watering newly-potted plants. Let it be a maxim, then, never to water a fresh-potted plant until it is placed where it is to remain.

The soil for potting should be neither wet nor dry; one is as great an evil as the other. It should, of the two, incline to dryness, and should be pressed tolerably firmly, not thumping the pot on the potting-board. The watering at first should not be performed in order to settle the soil, which means shutting out the atmosphere, but merely with the intention of preventing the soil from becoming any drier. Hard balls should be soaked overhead in water a day before shifting. The families of *Camellia*, *Acacia*, *Cytisus*, *Phajus*, *Rhododendron*, *Ectasia*, *Citrus*, *Epaeris*, *Correa*, *Azalea*, and last, but not least, the *Rose*, will be a blaze of beauty where plant-growing is well attended to. They will now require abundance of water, to which clear liquid manure should be occasionally added. Dispense with fire heat as much as possible; the excessive perspiration caused by a March sun is more than enough for their evanescent beauties without the aid of fire. Canvas screens, too, should be at hand to be drawn over the brightest parts of the house for two hours on sunny days. Force on *Fuchsias* where fine and large specimens are required; a moist atmosphere, with a slight degree of shading, will run the shy sorts into wood by retarding flowering. Those wintered in outhouses or cellars should now be brought forth and potted, if possible, to give them a start for the decoration of lawns or the flower garden. *Brugmansias* should be disrooted and started in heat. Shift, when necessary, Australian and Cape plants in a growing state, likewise *Pelargoniums*, *Calceolarias*, and *Cinerarias*, with a view to having fine specimens. Pot successions of *Gloxinias* and *Achimenes*, and keep them rather dry and warm. Orange trees, whether in tubs or the open border, must be examined; remove the surface soil down to the roots for several feet around each plant, and after giving the plants a good soaking of tepid manure water, top-dress them with rich compost, such as good mellow loam and leaf mould, to which sheep and perfectly-decayed pigeons' dung may be added to the extent of one-third. Orange trees require such soil to grow the fruit to perfection, with a tolerably brisk heat and plenty of moisture.

### STOVE.

Orchids are now swelling fast, and many of the blocks and baskets of *Stanhopeas*, *Gongoras*, *Pendrobiums*, &c., will require to be syringed twice a-week. Let this be done on sunny mornings early, and give air freely for a couple of hours, for fear of moisture lodging amongst the buds. In shifting large specimens in pots, break the pot carefully all round in small masses without injuring the roots, and shift the whole mass together. Terrestrial Orchids, in general, will succeed better in loamy turf and leaf mould (not too much decayed), blended with the lumps of peat. Renew moss on blocks forthwith. Attend to pruning back and disrooting *Justicias*, *Vineas*, *Clerodendrons*, *Eranthemums*, *Geissomerias*, *Plumbagos*, *Poinsettias*, *Erythrinas*, &c., at least those exhausted by flowering, and a few for early work. Those first out of bloom, if carried on in due course, will be the earliest next autumn and winter. When the weather is changeable and the sun glaring, it will be necessary to slightly shade some of the *Clerodendrons* and other free-growing plants, more especially if they are under sheet glass; but if it can be dispensed with, it is advisable to avoid shading as much as possible.

### FORCING PIT.

Keep *Roses* free from insects, watering frequently with liquid manure. Provide successions of plants for forcing. The Dutch bulbs should not stay long here. The *Hyacinths* lose much effect when their bells are too far asunder, through too much excitement in proportion to the light. Sow tender annuals. Do not forget *Pilox Drummondii*, *Rhodanti Manglesii*, and the *Portulacas*.

### COLD PIT.

Give air to these structures continually, at night as well as by day, if there be no frost. Pot-off stores for the flower garden, and bring them forward, more especially *Scarlet Pelargoniums*, *Salvia patens*, *Heliotropes*, *Verbenas*, &c. It will be necessary to keep up a genial heat in the cutting frame, and to top all cuttings which have taken root and are beginning to grow. The autumn-struck cuttings which were potted-off last month should be removed to a cold frame or pit, and be protected from frost. —W. KEANE.

## DOINGS OF THE LAST WEEK.

### KITCHEN GARDEN.

March indeed came in like a lamb, giving us two or three days of weather as mild as June, but he soon showed the shaggy

front of the lion, with a continuous downpour of sleet and snow on the 4th, and a clear sky, a rising barometer, and a north-east wind on the 5th, warning us to look out for March frosts. Besides preparing some ground, a task in which we were interrupted by the snow, our gardening has chiefly been confined to what could be assisted under protection, the weather being even too cold to enable us to plant out Cucumbers by carrying the plants from place to place. We considered it better to leave them a few days growing in pots where they were. We may here, in answer to an inquiry, add what we omitted to say when alluding to the Cucumber disease—namely, that curtailing the roots, or growing them in little space, had no effect whatever in getting rid of the visitation. With plants grown in pots and boxes, as well as when ranging over the soil on a hotbed, or in the open air fully exposed, or protected with hand-lights, the disease manifested itself, and in almost every conceivable mixture as to compost, as well as in all kinds of soil alone, without any artificial mixture along with it.

As soon as the ground dries after this snow we shall plant Potatoes, Artichokes, &c., and sow Beans, Peas, Cabbages, and other Greens for the earliest supply. The slight falls of snow we have had during the winter have greatly protected all sorts of winter stuff. Our most forward Cabbages will be early if the March frosts and keen winds do not hurt them. We planted a frame with Potatoes forwarded in pots, and sowed Radishes between the rows.

#### FRUIT GARDEN.

**Colour.**—The weather, on the whole, has kept the buds out of doors backward, and so far as we can see, the fruit buds are still safe. A little protection may be given ere long. We are more concerned about keeping birds from them than even frost. Cleaned and fresh surfaced the earth floors of orchard houses, and watered, where dry, after cleaning and washing the trees. A light colour at this season, besides deterring birds, is an advantage, as it keeps the wood and the buds comparatively cool. When nothing in the way of firing or forcing is attempted, the later, other things being equal, that the buds swell and break, the better: hence the light colour from mixed whitewashing, in the case of shrubs and low fruit trees in the open ground, helps to keep them late, as well as to deter the birds from touching them. In lean-to houses, as orchard houses, the same principle would apply to the trees in a border; but those grown against a wall would be acted on in quite a contrary way, from the reflection of the heat from the wall when that wall is of a bright white colour: hence in our houses where whitening or limewash would be too bright, we tone it down by adding lamp or blueblack to the wash, or in a common case a little soot, previously well beaten up into a smooth paint. In the open air against walls, if not put on very early, the white colour would be no detriment.

Its direct effect would be, during sunny days, to increase the temperature within 8 or 12 inches of the wall. We are only in the beginning as yet of the whole question of colour in reference to gardening. The common red brick is a very good colour for a garden wall. The colour may be considered as a medium one, so far as absorbing, reflecting, and radiating heat. A black-coloured wall will become very hot when the rays of the sun beat upon it, as it so freely absorbs the heat; but whilst absorbing it reflects outwards but little, and radiating outwards seems to beat a minimum whilst heat is so freely absorbed. When the sun ceases to shine, and the air near the wall becomes cooler than the wall, then, true to the laws of reciprocity, the black wall will radiate its heat until it becomes colder than a red-coloured wall, as all colours that freely absorb will also freely radiate. The part of the branches, &c., that thus comes close to a black wall may become very hot in a sunny day, and very cold when exposed to a clear sky at night. To make the best of the stored-up heat by absorption, a covering should be hung at night in front to arrest free radiation. A white or light-coloured wall will not of itself become so hot during the day, nor so cold at night, as a red or a black one; but in a sunny day the air for a short distance in front of it will be much warmer than in the case of the other two—a matter of importance when a high temperature at some time during the day is of so much importance in the case of many plants.

Failing coloured walls, the principle may be tested with plates of metal or tin of different colours, placed in front of the fire, or so as to face the sun. Hence the principle of the bright tin Dutch oven. It reflects the heat. If we wish to keep hot water a long time hot, the vessel cannot be too light or bright in colour. We have nearly boiled water in a closed black earthenware vessel placed right in the sun; we never

accomplished anything of the sort in a light-coloured one; but small thermometers, suspended 4 inches from them, and the bulbs facing each, the wooden backs of the thermometers being towards the sun, did not read alike, but the indication was highest in front of the white vessel.

We have sometimes been surprised that such matters have not engaged more attention, so as to be generally applicable to the affairs of everyday life. How often do we hear such a remark made, "We must take to our dark winter clothing, these light-coloured dresses are so cold?" It would take all our experimental philosophers combined to convince one in ten that all such ideas of warmth from dark colours have nothing better to fall back upon than fashion and custom. We grant at once that if a man in winter either kept close to a roaring fire, or went abroad only when the sun shone, then there might be some reason for donning dark garments for warmth. But when these circumstances are reversed, when there is no fire in winter from which to absorb heat, and no sun from which to obtain it out of doors, no colour can be so cold as dark or black, as it will be continually radiating the heat from our bodies. No colour for clothing could therefore be worse than black, as out of doors it will be the coldest in dull days in winter, and the very hottest in sunny days in summer. Such slaves are we to fashion, however, that we put on our black coat like other people. Light colours would be best for all weathers in the open air—the warmest in winter, and the coolest in summer. When once we bring such ideas to bear on our everyday life we may expect more attention will be paid to the colour of garden walls, and even to the colour of glass in plant houses, a matter of which we scarcely seem to know anything as far as practical details are concerned. Even as to the outside painting of glass houses and buildings, the colour has become a mere matter of taste and custom. Even here we think there is a principle involved. But for the blacks from chimneys, we should like our glass sash roofs to be painted with the best white lead, not at all toned down. We have known all shades down to dark and dismal black used, but in the latter case we have often noticed that the patty was heated into a sort of dust that would not hold together. Black in the shape of tar is often used for wood fencing, barns, &c.; but even when the wood is seasoned, it often seems to be soon deprived of its toughness when exposed to a fierce sun in July; and we have often thought that sudden conflagrations might be owing to this cause, though of our own knowledge we could not be sure of a case. Light anticorrosion paint would cost more than tar, the price of the latter being almost nominal, but we believe it would preserve the wood of a wood barn or fence better and longer.

We cut the last Grapes in the late vinery. Those with 6 or more inches of wood, stuck into a Beetroot and kept in a dry, airy place, will keep good for some time after cutting. Pruned Vines, washed glass, woodwork, and Vines, and gave the last a good washing with soap water; also made preparations for filling the house again with plants, but we shall try to have a stage in it, as thus at times and for short periods we can have double room—the stage above, and the floor beneath. The stormy day of Friday gave a good opportunity for such work, mending and making rough wooden boxes for cuttings and plants, and washing pots, making tallies, &c.

#### ORNAMENTAL DEPARTMENT.

Those who have early bulbs, such as Hyacinths, Tulips, &c., and want to make the most of them for the future, should recollect that the foliage should receive no check from cold or otherwise until it assumes its ripe decaying colour. Auriculas want some attention after such a winter. The surface of the soil will be apt to become crusted, if not green, and a little should be carefully removed without injuring a root, and replaced with rich compost made rather firm. As to Calceolarias and protection see last week.

Potted-off many bedding plants, and repotted young Pelargoniums, giving them pots a size larger, and using some mellow loam, lightened with a little leaf mould, drift sand, and charcoal. Years ago we charred all sorts of rubbish, and used it largely in pots and in the open ground. Of late we did not make much charcoal, and therefore used little, but we mean to go back again to its more free use, as we never found any plants that did not like it in moderation, and it is always useful for making a soil of the desired consistence.

Here we may mention a little matter. The appearance of some plants shifted or repotted some time ago did not altogether please us, and we turned several out to see what could be the reason; but the ball kept in obstinately, and the reason

was as obvious to us as if we had looked at the potting. The balls from the small pots had been transferred to larger unwashed pots. If the pots had been clean, dry, and well drained the balls would have turned out as clean as so many Dutch cheeses. No plants have the same chance to thrive in pots with small pieces of the old earth adhering to the inside. These soon prevent the water passing regularly and freely, and thus injure the drainage. Besides the slovenliness of the act, it is giving no plant justice to put it into a dirty pot. Well cleaned, an old pot is just as good as a new one—in one respect better, as it may be used at once. New pots at all fresh from the kiln should be steeped in clean water and dried before using. Pots should never be used after washing until they are dry. For washing, we think plenty of clean water is the best, with a fair portion of arm and hand power. In all cold weather we use water as warm as to be comfortable for the hands.

Proceeded with inserting cuttings and giving them a little bottom heat. For dispatch, in every way we find nothing better than shallow wooden boxes. These may easily be neatly made, but ours are rough enough—mostly old wood, which was merely sawn. Our only care about them, if previously used, is to have them clean; and old and new have a good coat of fresh limewash inside and outside, which keeps all fungi away. Boxes 2 inches deep do well enough for cuttings, pricking-off *Lobelias*, &c.

*Dahlias*.—We removed a lot of roots to the floor of a viney beneath a stage, to start them soon to obtain cuttings, or divide the roots so as to leave a shoot or stem to each. For good sorts which it is desirable to increase, it is best to place the old tubers in a sweet hotbed and tolerably near the light, so that the shoots that come shall be stout, firm, and short-jointed. As good cuttings may be made when there is the point and two joints behind it, though we have often cut them at the first joint below the point or axis of growth. It is common to remove the two leaves at the joint, after cutting clean across below them. When a nice moist heat can be given, the cuttings will strike all the sooner if the leaves are left. When thus left they generally have a bud at the base of each, which seldom starts into growth if the cutting strikes and grows quickly. The saving of these buds ensures you fruitful tubers in the following year—that is, tubers with eyes on them. When these lower leaves are removed, the cutting should be so made as not to take away the incipient buds at their base or axil, for if removed, though the cutting grows and the plant blooms well, and a mass of tuber is formed, it will very likely happen that that tuber will have no eye or bud in the following year, and therefore, as respects growth, will be no better than a Potato without a bud. When started early innumerable cuttings may be obtained from one tuber. It generally happens, however, that when a new kind is thus largely propagated the last-taken cuttings, though they grow well enough, will not bloom very well or very truly the first season. When we used to grow *Dahlias* rather largely we found that late cuttings did better afterwards when slipped into a good piece of an old tuber as a graft, instead of being struck on their own bottoms.

One of the simplest modes, therefore, for obtaining good strong plants of the older sorts that will bloom freely as well as grow freely, is to divide the old tuber, so as to retain a piece of the tuber to each shoot, pot the pieces separately, and harden them off before planting. Some years ago we detailed one of the simplest modes we had met with, where no glass could be given to the *Dahlias*. As soon as the tubers began to break a little in a warmish shed they were cut to pieces, so that each piece, if possible, should have an eye. A hard piece of ground was then chosen, a couple of inches deep of rough leaf mould and rough loam was laid down, the divided pieces of tubers were laid down on it, 3 or 4 inches apart, and covered with similar material. If the weather proved very cold a little litter was placed over the bed. If by the end of April and the beginning of May a few shoots came through they were covered over, and by the 20th of May or so there was a bed of strong stubby plants, ready to be lifted with good balls of rich material and planted at once where they were intended to bloom.

#### PROPAGATING HOUSE.

Referring our readers to those great beauties *Poinsettias*, *Euphorbias*, *Clorodendrons*, &c., to the directions given by Mr. Keane in the last and previous numbers, as *propagating by cuttings* is now a matter of importance to many of our readers who wish to make the most of their little houses, we shall just notice a very simple mode of doing so as practised by a nurseryman gardener. We mention the case as a happy combi-

nation of roughness, simplicity, economy, and success. We are not certain of the size of the house, but we shall not be far out if we say it is 15 feet by 10, heated by a small very common flue above ground, which runs along the front, one end, and part of the other end. There is a stage at the back, and a small platform about 2 feet wide in front, about 2 feet or so above the flue. The platform is thus formed: a few rough posts are put in the floor, a rail on the top, and from that rail to a ledge in front cross-pieces of wood or iron extend to support a bottom of slates, pieces of plate iron, tin, zinc, tiles, or anything which is the handiest to be had. A little slip of wood is tacked to the rail, so as to make a ledge above this flooring of, say, a couple of inches. This depth of 2 inches from back to front was filled with sand, and formed the propagating bed. When we looked in upon this rough platform, formed of damaged house slates, and old tin kettles and pans beaten flat, it was filled with cuttings, at 2 inches apart, of *Fuchsias*, *Salvias*, *Verbenas*, *Calceolarias*, *Cytisus*, *Coronillas*, &c., striking beautifully, and as soon as they had made their nice tuft of roots, they were lifted carefully, transferred to small pots of sandy soil, and either set on the same platform for a few days, or set on the shelves of the stage. To look at the affair, the cuttings seemed pretty well left to themselves, except a thin shading of whitening on the roof. It will be observed that the platform was from 24 to 30 inches above the flue, no glass or boxes on it, all quite open beneath, no chamber for bottom heat, no arrangement whatever for securing a moist heat, and nothing as respects a moist atmosphere, except an earth floor for the house, and a watering or syringing of the cuttings as they seemed to need it. We can hardly see how greater success could be obtained by simpler means.

We wished at the time that some of our correspondents who are so anxious to have a propagating place in their little green-houses had seen that bed; but then in honesty we should have been forced to tell them that the combination of simplicity and success was chiefly owing to making the little house ensnare one object—that is, striking cuttings, and encouraging them when first struck. The heat was as dry from the flue as it could well be, but the cuttings were kept moist by having the sand moist, and the young plants the same; but the heat given to ensure the quick rooting of cuttings would be too much for common greenhouse plants, and giving air to slay these would have injured the cuttings and caused them to flag.

As several times stated, however, the principle could be acted on, so as to have two or three distinct temperatures in the same small house. Suppose in a small house with a flue you had a similar platform over it, from 18 to 24 inches wide, just shut in that flue with some wooden shutters in front, and the plants on the platform would be warmer than those on the stage. Slides in the shutters would let out more heat for the atmosphere of the house if desired. Have a few little boxes with glass tops to go over the platform, and in them you may have a higher temperature by 10°, 20°, or more, than the general atmosphere of the house. If these boxes are too troublesome, fix a 5-inch ledge instead of a 2-inch ledge to your supporting rail, a similar ledge at the front wall, and take sheets of stout glass, say from 21 to 27 oz., cut the requisite length, and lay them across, edge to edge, as far as you enclose. If they lay quite flat, they would only require to be lifted and reversed once or twice in the twenty-four hours to prevent drip. A man who prides himself on doing such things can lift such squares easily without any risk of breaking. Rough or fluted glass would render all shading unnecessary. The thicker the glass the better, if not placed in a frame of wood. A dry cloth laid over the glass at night would keep the inside warmer, and prevent the condensation of moisture on the under side of the glass.

Of course there will be objections to these modifications of the above little propagating house, such as when the flue is shut in a chamber there may not be heat enough for the rest of the house in a cold night; and again, to have the heat for propagating you would be obliged to heat the flue when the rest of the little house would be better without it. No doubt, in the first case, you must open the slides; in the second case give more air to the house in general, whilst the propagating part is kept close. Where these objections are felt to be strong, and the greenhouse is near the dwelling-house, we can offer nothing better than having a box with a moveable glass top, a double bottom—table-drawer fashion, the space between waterproof, and the upper bottom zinc or plate iron. If the box is small, a kettleful of hot water will keep the necessary heat from sixteen to twenty-four hours. We have so frequently recommended this simple mode, that we must refrain

from alluding to it again for some time; but we know that many are anxious to try striking by cuttings in spring, and we should like them to have the pleasures of success. Such a box could be heated by gas or a lamp, but when near the dwelling-house we know nothing simpler than just drawing off the cooled water and replacing it with warm. It matters not with what the space at bottom is lined, provided it is waterproof. Wood itself may easily be made waterproof, and continue to be when supplied constantly with water. It is essential that the outside at least be wood to keep the heat in.—R. F.

## METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending March 31st.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. ... 2	29.497	29.415	69	57	47	43	S.	.00
Thurs. ... 3	29.468	29.430	69	55	46	43	S.	.04
Fri. ... 4	29.473	29.467	58	52	42	41	E.	.50
Sat. ... 5	29.491	29.462	47	37	42	41	E.	.00
Sun. ... 6	29.424	29.430	31	31	42	41	N.E.	.00
Mon. ... 7	29.298	29.144	45	31	41	40	E.	.00
Tues. ... 8	29.148	29.128	45	36	42	40	E.	.00
Mean...	29.360	29.445	47.57	39.71	43.00	41.29	..	0.54

2.—Overcast; cloudy, but fine; rain.

3.—Dense fog; very fine; overcast.

4.—Rain; drizzling rain; overcast and cold, rain.

5.—Overcast and cold; very fine; clear and fine.

6.—Clear and frosty; densely overcast; overcast.

7.—Overcast; densely overcast; overcast.

8.—Overcast, cold wind; overcast; densely overcast.

## TRADE CATALOGUES RECEIVED.

Carter & Co., 257 and 259, High Holborn.—*Carter's Flowers Catalogue, Illustrated, 1870.*

John Morse, Dursley, Gloucestershire.—*Catalogue of Cuttings.*

John H. Ley, St. John's Road Nursery, Croydon.—*Catalogue of Ficus and Nov. Plants.*

## TO CORRESPONDENTS.

68. Many complaints having reached us as to the difficulty and delay in procuring this Journal on the day of publication, we repeat a notice in the first column of our advertising pages, showing how its delivery can be promptly and punctually secured. *Points published in time for transmission by the Thursday morning mails. The Journal of Horticulture should, with few exceptions, be delivered to the same day in all parts of the country. If there is any delay, let our readers apply to the nearest railway book-stall, or to the paying their subscriptions in advance their copies will be regularly supplied. If country booksellers cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.*

N.B.—Many questions must remain unanswered until next week.

BOOKS (R.).—"The Garden Manual." You can have it post free from our office if you enclose twenty postage stamps with your address.

EMIGRATION (C. P.).—Before you, or anyone, fix on a colony whither to emigrate, let "The Year-Book and Almanac of Canada" be read. It can be obtained at the Canadian Government Emigration Office, 11, Adam Street, Adelphi, London.

TABLE MAIZE (M. D.).—The Rev. T. C. Brotham informs us that the Maize seeds can be had of Messrs. Barr & Sugden, King Street, Covent Garden.

STRAWBERRIES (Ident.).—All the varieties you name can be obtained from nurseries who specially attend to the propagation of Strawberries. They advertise in our columns.

FRENCH PRUNING NIPPERS.—THE SPACER.—"C. M. P." wishes to be informed where to obtain these.

RESURRECTION PLANT (C. N. D.).—We know of no other than the *Amorpha* that is so named. If you send us a flower and leaf we may be able to identify it.

CHAM VIOLET (M. C.).—We do not know where its seeds can be purchased. If they were sown, the seedlings would probably not be like their parent.

STRIKING CUTTINGS OF MRS. POLLOCK'S *Phlox* (Ident.).—We should advise you to wait until the end of March before taking them off, and for two reasons. The first is, there will be less danger of their dropping off them, and the second is the cuttings will be longer and will be more of them. We have known a sad loss result from putting in cuttings of old woody *Phlox* in February without sufficient heat to put them on. We advise you not to be in too much haste in putting them in.

VERBENA VENOSA SEED NOT VEGETATING (E. F. H.).—One of our correspondents who grows this *Verbena* extensively, says it is better not to sow the seed until early in spring, as he once lost a quantity sown at the

end of August in consequence of the plants not attaining sufficient size to withstand the early frosts, as the plant dies down, leaving no foliage whatever, like many herbaceous plants, but a number of Cuck-like roots near the surface. The seed also requires a long time to germinate; but if sown in March, and the young plants duly attended to in the way of pricking-out, &c., it will flower as early as the other kinds of *Verbena*. The plant produces seed in abundance, which occasionally vegetates in the following spring when self-sown. We would not, therefore, advise you to throw away for a week or two the pan you sowed in October, but to sow more, and if the seed be good the result will be satisfactory.

VERBENA VENOSA SEED SOWING (Bank of the T.).—It is a very useful plant for bedding; the colour of the flowers is blue. Sow the seed now in a compost of two parts sandy loam and one part leaf soil, with about one-sixth of silver sand, &c., and place it in a hot bed, or in a frame, and keep them near the glass, and when large enough to handle pot them off singly in small pots, return them to the hotbed, and keep them close, moist, and shaded for a few days, and then harden them off and remove them to a cold frame, planting them out at the end of May or beginning of June.

MYOSOTIS DISSEMINATA SEED SOWING (Ident.).—The seed may be sown from now to the end of June, but we think April or May the best time, sowing in pans, and placing these in a cold frame until the plants appear, then expose them fully. When the plants are large enough prick them out on a hot or slightly shaded border, and plant 6 inches apart, and 3 inches from each other in the lines, shading until established, and watering as required. In autumn the plants may be planted where they are to flower, or be potted in 4-inch pots and wintered in a cold frame, planting them out in February or the beginning of March.

GALLIARDIA PICTA TREATMENT (Ident.).—It requires the same treatment as *Aster*—that is, to be sown in loamy soil and leaf soil, in a pot or pan, and to be placed in a hotbed. When the plants are large enough prick them out in pans about an inch apart, continuing them in a frame for some time longer; then harden them off, and plant them out at the end of May.

HOLLIBOCK SEED SOWING (Ident.).—Sow it in pans now, and place them in a frame with a gentle heat. When the seedlings appear remove them to a cold frame, keeping them near the glass and well aired. When the plants have appeared, leave them as they are, but in an open situation, in light sandy soil, and in lines 1 foot apart and 6 inches from plant to plant in the line. In October the plants may be taken up and potted if of a choice strain, and be wintered in a cold frame, planting them out at the end of March. Instead of taking up and potting you may, at the end of August or beginning of September, remove every second plant and line, and plant in lines 2 feet apart, with 1 foot distance between the plants.

STIPA PENNATA TREATMENT (Ident.).—Sow the seed in sandy soil, and place it in a frame, keeping the soil and air of the frame moist and rather close. When the blades appear add a little water, and keep the plants handled pot them off singly in small pots, and return them to the frame, keeping them close and shaded until they have recovered from the potting; then admit air freely, and harden them off, planting them out in the open ground when they become strong.

ANEMONE SEED SOWING (Ident.).—Sow now or early in April in light sandy soil enriched with leaf soil, sowing in a bed 4 feet wide with 18-inch alleys. All the seedlings require the first year is to be kept clear of weeds, and to be watered in dry weather, but not after the growth is complete. A better plan is to sow the seed as soon as ripe. The bed should have a slight mulching of leaf soil in autumn or early in winter. In the second year the plants will flower, and you may then mark the best, and remove them from the seed bed when the foliage decays, throwing the worthless ones away or planting them in a shrubby border.

SPURGEON CORONILLA CORONILLA (J. H.).—You do not say what *Genista* it is, but we presume it is *Coronilla flacca*, a greenhouse plant, requiring a cool airy position in a house from which frost is excluded. Cuttings of the current year's shoots should be taken when these become firm, and inserted in loam, sandy peat, and silver sand, surfacing the pot with an inch of silver sand. The cuttings should be put in round the sides of the pot, and the cutting-pot inserted in one of larger size, the space between the pots being filled with small crocks, surfaced with sand. The rims of both the pots should be level. Put on a bell-glass with the edges resting on the small crocks, and the pots should be shaded from bright sun and keeping close and moist, and avoid making the soil wet or the cuttings may damp off. In a month or six weeks the cuttings will be rooted, when they should be hardy and kept dry, and removed to the greenhouse. The soil best suited for growing the plants is light turfy loam two-thirds, and one-third leaf-soil, with a free admixture of sharp sand. The *Azalea* cuttings should be struck in the same way, only they require less heat.

HACINTH FLOWER BUDS TURNING BROWN (C. E. B.).—We cannot account for the flower buds turning brown, unless it be from their being exposed to too great heat, and having in some way been injured. We have never seen *Hyacinths*, and what are known as Dutch bulbs, do worse than they have this year: the spikes being in most cases very small, the flower buds few, and opening very small and poor.

INDIANREEDER PLANT TREATMENT (J. GARDNER, B. D.).—This plant requires a temperature of 59° to 65° in winter, and 60° to 70° in summer, with a rise of from 5° to 10° on dull days, and from 15° to 20° with sun and air. Owing to the cold the growth of the plant is not perfect. In summer, and the points go off in winter from the damp. There is no reason why it should be given the plant more heat, and keep it dry, though it has a hard thick leaf, unless well matured by heat and exposure to light, it is not proof against a greenhouse temperature and damp during the winter. When the growths are made and matured in the soil, it is ready to be given the plant more heat, and keep it dry, and on this maturity of the growth that its value for the decoration of rooms, &c., in winter so much depends.

CUTTING-BACK ERICAS (Ident.).—Plants that have become very straggling in growth ought after flowering to be cut back, but young green shoots must be left at the base or below where each cut is made. The pruning may be done now, and the plants pruned this month. All pruning should be done by the end of June.

**SLOPING GROUND** (*Mary Ottobach*).—Your dry sloping plot of ground, open to the south, but on other points enclosed with high trees and shrubs, we should think suitable for early or second early Potatoes, and we advise you to give the ground a good manuring and to plant it with *Lancaster Kidney Potatoes*, the best of all for dry soils. For late kinds we do not think it would answer, as the roots of the trees must take a considerable amount of moisture and nutriment from the soil, whilst the inclination to the sun, combined with the concentration of the heat, must be so favourable to crops which make a start before the average heat of summer sets in. For early crops of vegetables we should think the ground very suitable if well manured in autumn, or before putting in the crop.

**DENDROBIUM NOBILIS—CYCLAMEN PERSICUM** (*Ingénieur*).—*Dendrobium* cannot properly be raised in greenhouses, but *Cyclamen persicum* is common to have *Cyclamen persicum* in flower seven months from sowing the seed, but we have had it in bloom after Christmas from sowing it in April.

**FLUE-HEATED FRAMES** (*J. P. B.*).—Probably the reason why the flue will not draw, even with such a rise, is owing to the furnace-bars being so near to the flue, and with the bottom of the flue. They ought to be from 18 to 24 inches lower. For such a small place, 15 feet by 4, if you had merely taken the flue along at the back and into the chimney at once without so many bends and elbows, we should have thought you would have had enough of heat for common purposes. For keeping out frost we should have thought the heat of the oven and the chimney sufficient without a flue. Meanwhile, as you have the flue, see that the furnace-bars are as low as above stated beneath the level of the base of the flue where it commences from the furnace, and let smoke rise freely.

**FRUITING TREES** (*J. F. G. B.*).—The best plan would be to weed out the rough grass, and the Daisies, and sow with a mixture of lawn and croquet grass seeds, sowing in a fine dry day, then scattering over all about half an inch of fine light soil, and rolling it down. If the Daisies are very thick and little grass is left, you may roll down a little, and then turn them over, but sending them out would be best for the quick formation of the lawn. The best trap for slugs is a handful of brewers' grains laid down and examined before light. The next best is pressed Cabbage or Lettuce leaves. *Phalangium* they greatly dislike, and moving about preserves their position. Strawberries in pots should be covered with syringing Rose trees when in a state of rest. In summer weak soap water would be better and safer. It is not safe to use soap, as it is quite uncertain what may be in them, and even if dirty they must be rather injurious to a fine-planted plant. For insects, like soft-sow water, we have an ounce to three gallons, and put on when settled and clear it will do no injury.

**PEACH TREES AND STRAWBERRIES IN POTS** (*E. H.*).—As your Peach trees in pots are just swelling their buds, you may prune them back safely; but as you have a few in the garden, and as you have a few in the garden very close until you see the fruit buds, you may leave them. You may keep the shoots as near home as you please, by selecting next summer's shoots from the base of the present shoots, and pinching in next summer. If your unpinned shoots prove barren, then you can cut back if so disposed. You are surprised that your Strawberries in pots should not be in bloom in an orchard house. They will want watering as needed. We have no faith in regular waterings. However, Strawberry plants in bloom will not set unless they are moderately moist, and if in saucers, such plants have no chance.

**PLANTING SEVEN ACRES WITH TREES AND SHRUBS** (*J. G. C.*).—We venture to throw out the following hints, and as you have arranged to have an avenue, or rather two avenues, let us say you have sketched parallel to the road be moved a little more eastward, so as to point to the intended castle with one end, and the other end point to some prominent object, however distant, as a church or other interesting object; never mind whether it be parallel to the road or not, as a little divergence can easily be rectified by planting a mass of shrubs near the boundary, not in a straight line, but having an irregular front, so as to disguise what is behind it. This avenue we would plant with Cedar of Lebanon, as we have more faith in it than in the Deodar, and the width from side to side should not be less than 80 feet, and the distance between the trees in the row may be about 40 feet; or you might for a time let them be 20 feet apart in the row, and take care to thin them when they touch each other. The avenue behind, you might plant with Abies Douglasii, which we believe will do well on your soil. The following might be planted singly or in groups—*Alnus Moriada*, *A. Menziesii*; *Picea Nordmanniana*, *P. canadensis*, *P. Fargesii*, *P. excelsa*; *Pinus Laricina*, *P. sylvestris*, *P. strobus*, *P. contorta*, *C. Knighiana*; *Letospermum pistifera*, *R. obtusa*; *Thuja Lobbi*, *S. gigantea*; Chinese and American Arbor-Vitæ; *Thujopsis borealis*, very plentiful; *Wellingtonias*, Yews, and the more common kinds of Fir, of which the Scotch Fir is the best. Possibly, however, the Spruce Fir may do best, but you, but in many places it is not so good as the Scotch Fir, and in the twenty or thirty years. *Pinus austriaca* and *P. Cembra* might be added, but we think *P. insignis* will be too tender; the Weymouth Pine and *P. excelsa* are certainly harder, and you might try on a small scale some of the species, but do not give up the Scotch Fir, as it is so good. We would believe them very hardy. We imagine the Wellingtonia will do well with you. What we advise more than all, as tending to speedily give the grounds a clothed aspect, is plenty of *Rhododendrons*. Groups of these in different places would very much improve the appearance of the grounds. Laurels and Laurustinas are not so hardy, neither are *Azaleas* nor *Azaleas* hardy enough, but *Berberis Darwini*, *B. Wallichii*, and *B. Aquifolium* are all good. The *Phillyreas* are also neat small-leaved evergreens, and so is *Cotoneaster microphylla*. *Daphne Laureola* is a good plant. *Euonymus* are doubtful, and the same may be said of evergreen *Enomyces* and *Garrya elliptica*. A few Portugal Laurels may be tried, all the varieties of Holly, and a few Evergreen Oaks. These are about the best and hardest evergreens; but there are some useful deciduous shrubs worthy of place, as *Amelanchier canadensis*, *Amelanchier*, *Deutzia scabra*, *Mock Cherry*, *Catalpa*, *Ribes sanguinea*, *Thorn Acaia*, *Spiraea prunifolia* plena, *Sunach*, and others. Of trees a Birch, Purple Birch, a few Limes, Lombardy Poplars, and a few *Salix* might be tried, not forgetting a good Weeping Willow, which in the breeze looks as well as anything. The Oak, we think, will hardly do so well, but you might try a few; only do not by any means overwood the place. In general, if the soil is rich, and the groups in a prepared bed, 10 feet apart will not be too great a distance, but they may be thicker if you

will ensure their being thinned in time. In arranging the planting let a good space in the centre remain open, as there is much dignity in plain grass; let as much of the water, also, be shown as possible, only hiding its extremities in such a way from the road as to lead to an impression that it extends further. A few patches of *Rhododendrons* by the sides of the stream of water may also be introduced, and if the banks of the lake are high and steep such a plant as the *Cotoneaster* may hang gracefully over, and the summit so surrounded with a Cypress or similar plant.

**FAILURE IN HEATING** (*Ingénieur*).—There is something wrong, when in some quarters of the wind the flue will not draw, and in other directions of the wind the flue draws so freely as quickly to burn out the fuel and scorch the plants. The first fault not drawing, we should be inclined to attribute to the base of the furnace being too low, and to the flue being lower than the bottom of the flue. The second unpleasant symptom we should attribute not so much to no protection being given to the furnace, as to ill-fitting furnace doors. If there are close, and the airtight door kept down, it would surprise us to find your furnace cold, and exhausting the fire so soon. No fire will so roar and burn in a furnace without too much air being given. We could thus make a furnace one of rapid or of slow combustion at pleasure. We notice that your flue goes along the front and one end, and then by means of cylindrical pipes passes transversely along the back to the elevated unused chimney. There would be less likelihood of these cylindrical pipes becoming so hot if you continued the flue along the back of the house, and raised the chimney pipes opposite the chimney. For the sake of other objects, we know the result, as respects grating-bars and furnace doors. Secondly, there will be no difficulty in heating the greenhouse from the kitchen boiler placed against the back wall at the middle of the greenhouse, but as the boiler is 2 feet from the middle of the pathway, and the trap, therefore, 3 feet from the midway, your pipes must be all that above the pathway-level in the house. With an open-top boiler your top down-pipes would require to be 2 feet 10 inches above the roadway, and the return pipes 3 or 4 inches lower, down to the boiler, and then up to the boiler, and then down to the boiler. You might have the pipes laid at that height on supports of wood beneath your plant stage, or even against the back wall, but you cannot bring your pipes with propriety below the level of the boiler. The simplest plan will be to go in a straight line from top and bottom the boiler to each iron grating for the slow and return, and as the boiler is in the middle, connect these with T-3-inch pipes. The house being against the chimney two of these pipes would do for common purposes; but if you want, as you state, a heat of from 60° to 70° in severe weather, you would require four such pipes, or three 4-inch pipes, and we would merely to keep plants safe in such a house with a kitchen fireplace, boiler, and chimney in the middle of the back wall, we would so far bare the wall opposite such a fireplace, and make a small chamber there covered with a heavy plate iron, with openings in the top and bottom to let the cold air in, and the hot out from that chamber. Try the due again.

**EIGHT VEGETABLES FOR EXHIBITION** (*A Young Beginner*).—We do not think you can well improve the collection you name for a September show—viz., Kidney Potatoes, Peas, Scarlet Runner Beans, Onions, Cauliflower, and a small number of Cucumbers. You are not, however, able to prepare another kind or two, so as to have sufficient to choose from, say Turnips, Lettices, and Cucumbers. It not unusually happens that the awards are made to collections consisting of something of more than ordinary merit for the season. For instance, a good Lettuce in September would be taken precedence of Cucumbers, and a good Lettuce, most places, as the season favoured the growth of Tomatoes more than that of Lettuce, although in general the latter is not esteemed a choice vegetable. In certain seasons a dish of fresh, juicy Turnips may rank higher than Cucumbers or Cucumbers. You are not, however, able to exhibit; but generally the judges award the prizes to the collections having in them the most meritorious articles, whether such vegetables be choice or common, and some very common ones are chosen in an adverse season. A good dish of Peas is necessary, and good Celery too.

**LURE DOWN TURF** (*P. D. P.*).—Putting cinder ashes under the turf as you have been advised to do will certainly tend to keep down worms, but it will also cause your lawn to burn more in a hot, dry season than it otherwise would do. You must therefore choose between the two evils. If the ground is moist it would be better to do it, and add lime near the turf, rather than cinder ashes, to keep down the worms. Lime also checks the growth of moss, which in some soils is very plentiful, and the same effect is produced, though in a less degree, by cinder ashes. In mild autumns worms are an evil not easily remedied, but they are not so much a trouble as in some soils, and in cold time or ashes now; where they cannot be prevented it is not prudent to move too late in the season. We must warn you against using cinders too freely.

**HOT-WATER FOR BOTTOM HEAT** (*J. B.*).—For years we have stated that pipes are a good way of going for bottom heat, but that they are not always laid close, yields no more moist heat than a pipe. A pipe will always yield the most heat when surrounded with moist materials. You have been fortunate in obtaining such a command of heat. We must say that we have no experienced knowledge with regard to other kinds than the *Hydrotus* of the kind of pipes. We assume that the moveable iron troughs you do not approve of are troughs set upon pipes. Certainly these are not equal to troughs cast on the pipes; but it was shown long ago how these moveable troughs may give off much more vapour if the pipe they are set upon is not surrounded with earth or white lead. Now these are almost as good as those cast on the pipes. But, remember, the trough must be fixed for all its length, so as to join the pipe, leaving no air between the two. This would be less trouble than the *Hydrotus* of the kind of pipes. The result of the kind of heat when growing and advancing to bloom, are the principal points to be attended to.

**VARIOUS D. K.**—Weeping trees have usually been obtained from those creditably assuming that habit, and the seeds of the same have been obtained by cross-breeding and the selection of seedlings. Botanists differ as to genera and species. Hogg's "Vegetable Kingdom" will instruct you in botany.

**COST OF A GREENHOUSE** (*E. J. T.*).—We could not give you an answer to be depended on, as we know nothing of how you are satisfied, and expect will do so, and we will not venture to give you a price, but the price of bricks in your neighbourhood, and the expense of putting



poultry exhibitions that will be held during the present year, combined with a proportionably increased value of the prizes offered. The all-important necessity, therefore, of enforcing in future, as far as possible, a fair mode of competition among all exhibitors is decidedly of far more vital and paramount importance than it ever has been. As the present season of poultry shows is pretty well over, a favourable opportunity now presents itself to revise and amend some matters connected with these popular meetings, and such considerations as once lead me to my subject—trimming.

It is pretty evident that the present system of "disqualification" of any pen of birds discovered, and fully proved to have been tampered with by their owners, has very little effect in deterring others from attempting similar deceptions, for, as a reference to the pages of the Journal will convince the most sceptical of our readers, even the open publication from time to time, as they occur, of the names of the offenders, coupled with the artifices resorted to by them, appears quite inoperative. My experience assures me that "trimming" exists to a far greater extent than most persons imagine, for to my mind it is certain, that although there have been so many cases of exposure, a by-far larger number have escaped detection altogether. I can, from many years' experience, speak with authority; occasionally trimming crops up with ever-changing devices, so much so, that under the hasty inspection necessary from the brief time allowed the judges, often combined with bad light, it is quite impossible to detect immediately every instance of this offence; but it would certainly be well if, among the many parties most interested, any suggestion could be devised for its suppression.

My own conviction is, if a punishment to the exhibitor, at once certain and severe, could be insured on conviction in all bad cases that may be brought to light; and, again, if the general body of exhibitors, together with the members of the various local committees, would heartily support the judges in the truly unpleasant task of enforcing whatever punishment may in future be agreed upon—perhaps a goodly number of the most flagrant attempts to thus unworthily obtain prizes would be avoided, or, at least, rarely resorted to.

I confess that I look upon the abstraction of a body-feather or two—this being a practice which I am confident can never be repressed altogether—as a widely different grade of criminality from that of putting the combs of living fowls straight by the insertion of needles, or cutting and carving their combs into shape, as is sometimes done; again, the painting of legs, the dyeing of wings, the substitution of artificial feathers for natural ones; or Game fowls laced tightly together with sewing-silk in the wings and tails to give the appearance of close feathers and such like. It is these latter cases that cannot but be repudiated by every well-wisher of poultry exhibitions, and which it is the united interest of all who exhibit honourably to put down. It may be urged that any line so vaguely drawn must necessarily be hazy and indefinite to practically act upon; but I fancy where judges are willing to do their duty at once fearlessly and honestly, an inexorable accuracy will not be insisted on, and if such arbitrators do err at all, it will be on the side of forbearance, though in every really palpable case they will as certainly be found standing firm-handed in favour of the honest competitors.

Recent events have brought these matters more prominently before me than heretofore; and in a chat with an intimate friend on the subject, who is alike a member of the legal profession, and, I am glad to say into the bargain, is likely to become an inveterate poultry fancier. I made a suggestion—that if judges could, besides the premium in the class where the trimming occurred, withhold also every other prize or prizes gained by the offending exhibitor at that particular show, it would make such parties hesitate and weigh well beforehand the consequences of discovery, involving so much pecuniary loss and disgrace, prior to irrevocably committing themselves. This gentleman advises me that judges unsupported can exercise no legal power to withhold any other prizes fairly won because an imposition could be proved to exist in another instance; but that the same end might be as readily obtained by a condition inserted in the printed regulations of the prize schedule, to the effect that in any such extreme instance of trimming as dyeing the plumage, &c., being proved, the exhibitor shall forfeit all the prizes he may have obtained at the show to the funds of the Society.

As I have received so many letters in time back assuring me of the determination of the various writers, both individually and collectively, to support judges in the suppression of trim-

ming, which have in the sequel passed off more in smoke than fire, I wait anxiously to see the result of again bringing the matter publicly before the poultry world; and if a really useful suppressive measure should arise from any quarter, it will be hailed by no one with a greater amount of satisfaction than by—EDWARD HEWITT.

## GAME FOWLS.

My having been a breeder of Game fowls on a large scale for upwards of thirty years is my only, and, I trust, sufficient excuse for making the following observations. I not only endorse the pertinent remarks of "CHAMPION" and "NEW-MARKET," but I venture to assert that a very large percentage of prize-winners in the Game classes of our poultry shows are crossbreds, and not Game, and their exhibition as such is even more dishonest than the disreputable trimming, dying, and making, so often and justly censured in these pages. As many honest fanciers may be sceptical on this point, I will refer to a few cases, out of many, that have come under my observation. A gentleman, being a great fancier of Game fowl, got up a poultry show in a large town in the west of England, and as he spared neither his time, influence, nor purse, he succeeded in getting a large and good entry, patronised by a vast number of delighted visitors. At the close of the show he purchased the first-prize Game cock at a very high price to breed from, and after a few months he was disgusted to find it had no more Game blood than a Dorking. I believe the surplus, intended for the benefit of the next show, was handed over to a charitable institution, and although after some years another show was held which has since been continued annually, I have never known the above gentleman patronise, even by his presence, what he terms a sham. Another case was that two gentlemen noted for their crack breed of Game fowls, were on a visit to one of the greatest prizetakers in the midland counties: visiting his birds on their walks, one of them was so struck with the appearance of a brood cock, a cup winner, that he intimated a wish to put one of his favourite hens with him, in order to have a brood of chickens. Judge of their surprise, on being told by their host, in confidence, that although he was one of the handsomest-feathered birds in England, he was not Game. At a recent show, one of the Committee exhibited some Game fowls with which he had previously taken prizes, and took first and second prizes with two handsome birds, in the eyes of certain old ladies. Some of the beaten exhibitors could not see it, and attributed their winning more to favour than merit; in consequence they were tried by a certain test, which quickly proved them to be what they ought not to be, and the strain can now be purchased for as many shillings as they formerly made pounds.

But it is not in courage alone that exhibition birds are inferior to pure Game, they are equally deficient in health and stamina. Pure Game fowls have been bred for centuries past with such care as to health, that their breeders take various means to ascertain whether their breed stock is in the fullest health and vigour, and if found in the least defective, the birds are at once discarded, however valuable they may otherwise be; but with the majority of exhibition breeders, provided the birds do not look decidedly unhealthy, their having the required feather and points to please the eye of the judges is alone sufficient recommendation to breed from them, regardless whether they have good constitutions, or no constitution at all. We also look in vain to exhibition Game for the acknowledged delicacy and flavour of flesh and eggs of the pure Game, which have always been bred "corky"—that is, having the greatest possible strength and size, combined with the very lightest weight to go to scale with, in consequence of which they are free from all gross humours, their flesh being at once light and easily digestible, and scarcely inferior in richness and flavour to game; indeed, a celebrated physician has asserted, that there is more nutriment in a good Game fowl than in the largest fowl of any other variety to be found in the London markets. The Malay, with its large bone, and hard and stringy flesh, is certainly the very worst cross that could be thought of for this breed; and we fail to see at our exhibitions the elegant and muscular conformation of our true Game. I have before me upwards of twenty coloured prints, by Alkin, and others, several fine engravings from paintings by Dargery, oil painting of winners of gold cups at the Cockpit Royal, and of the most celebrated cocks of the past and present century, but fail to discern any striking resemblance in any of these to the present race of exhibition birds.

The following are some of the points we formerly looked for in a Game cock:—A good boxing beak, which was very big and crooked (hawk-shaped); a large, full, fiery eye, and tapered head, not too long (for in combat he takes hold of his adversary to strike, and if the head and beak are very long and straight he loses much of his holding power); long, strong neck; flat, broad body, tapering wedge-shape to the tail; long strong wings, so that when they are clipped the quills are of a powerful description; round, muscular, short thighs; legs to be of a good hard bone (not at all gummy or fleshy like other fowls), standing with a good bend at the hocks, so as to have a full spring when rising, and not straddling, or out of line with the body; spur very low; clean, thin feet and toes, with a long open back claw. In conversation with one of the judges at a recent show, on the objectionable Malay cross, he asked how it could be detected and prevented? I think "NEWMARKET," or any other experienced fancier, would find but little difficulty in distinguishing the saucy, bold, defiant look of the true Game cock, whose every movement is the poetry of motion, from the cruel look, stiff, clumsy, and stork-like gait, of the Malay cross. To prevent such being exhibited I would disqualify all these crossed birds, as purity of breed is ever to be the first and paramount consideration. I am aware that being a good judge of general classes does not necessarily qualify a person to judge Game classes, rather the reverse, so different are their distinctive points from other fowls.

If a club were formed, as sometime since proposed in these pages by Mr. Dear, to offer prizes for pure Game at some of our leading shows, we might not only save our Game fowls from degenerating, but even improve them, as exhibitions have wonderfully tended to do in other breeds. We could then not only see our present Black and Brown-breasted Reds, but as "WILTSHIRE RECTOR" suggests, have the charm of variety in colours and strains, now almost extinct, such as Muffs, Hennies, Tassels, &c., and in colours the now scarce, but formerly plentiful and beautiful Black-breasted Dark Reds, Brick-breasted Orange Gingers, Treacle-breasted Marigold Duckwings, Tawny Duckwings, Mealy Greys, &c.; and I, for one, would gladly put my shoulder to the wheel to prevent our noble Game fowl from degenerating into one of those useless crosses of which we have already enough and to spare.

I saw it stated in a recent number of "our Journal," that there was no distinct work that treats on Game fowl. As I have received letters of inquiry on this matter, I beg in conclusion to point out the error. In the reign of good Queen Bess Roger Ascham wrote a treatise on Game fowl, which I have never been able to find, even in the library of the British Museum; another was written by George Wilson, in 1607, followed by R. Howlett's "Royal Pastime" (1709); "Directions for Breeding Game Cocks," being a reprint of Skelthley's contributions to a high-class sporting periodical (1793); Skelthley's "Cocker" (1814); Cooper's "Treatise on Game Fowl" 1850; and I have heard of a work by a Welsh author, Howell Morgan, but never seen it. The best articles published in other works are to be found in Rees's, Johnson's, and Blaine's Encyclopædia; Field Sports; and the contributions in these pages by "NEWMARKET," as most of the above are scarce and out of print.—CORNHILL DUCKWING.

### BUCKWHEAT AS A POULTRY FOOD.

I HAVE from time to time noticed in your answers to correspondents several questions as to the value of buckwheat as a poultry food, in reply to which you generally state that you consider it a very poor poultry food. I have used it frequently for my fowls, and I always found they thrive on it. At one time I fed them on buckwheat, barley, and Indian corn given by themselves at different meals, so that they were equally used to each; and I found that the fowls were the better. I always found the fowls picked up first the buckwheat, then the Indian corn, and last of all the barley. A small brother of mine used to say, "How it must make the fowls' necks ache! Why don't they fill themselves out on the Indian corn?" Pigeons prefer it to any other grain, except hempseed. My fowls would eat it very well on it, and the chickens would eat it when three or four were old. Mr. L. Wright speaks well of it, and altogether I think it a very economical food.—CHRYSEIS.

EGG PRESERVING.—The following hints may be useful:—One plan in New York is to pack them in salt, the small end

down; another method, said to answer admirably, is to fill a bucket with them, and dip them into hot water for thirty seconds. In Russia the eggs are put into a keg, and heated lard is poured on them, so as to fill the interstices, and thus prevent evaporation.—(The Food Journal.)

### POLANDS.

HAVING been for many years a breeder and great admirer of Poland fowls, I was very pleased to notice Mr. Boothby's remarks on them, as also to note the commendatory terms in which my friend "WILTSHIRE RECTOR" speaks of them.

It will, I fancy, be allowed by all that the classes for these fowls are amongst the greatest ornaments of any collection; even our good friend "NEWMARKET" admits that they are "ornamental." In spite of this, of late years, Poland has gone down, and even although the topknots have grown larger, the shadows have certainly been less. Let us turn to the "Poultry Book," and how many varieties do we there find mentioned? But, as Mr. Boothby says, Who keeps them now? In years gone by Mr. Vivian was the great supporter of this breed, and had an almost endless variety. The grouping them together into one class has, however, proved utterly fatal to their cultivation, and only a few ardent admirers remain. We shall be reduced very soon, if we are not already reduced, to Gold and Silver, and White-crested Blacks. Where is the White Poland? Where the Buff? Where the Frizzled? They are of the past, and unless some greater encouragement be given to those that remain, I fear after a little time they will be pulled out. There are perhaps some points in the breed itself that tend towards this; they are more adapted to a covered-in aviary than to shift for themselves. Shifting for themselves in the case of Poland often means loss, and the better the bird the greater the fear. The grandest topknot I ever saw in a pullet I lost the first time it was allowed to ramble, and the loss was permanent. An old but testy friend of mine, to whose daughter I had given a pair, would not at last have them on his premises; he persisted in calling them "wooden-headed creatures," and ultimately they were returned to me. In this case the cock was always at the pig trough, and his topknot was a ludicrous compound of feathers, barleymeal, and dirt!

My special fancy is the Silver variety; it is to my experience very hardy, and breeds truer to the excellence of parents than either the Gold or White-crested Blacks. I once had three sittings of the latter from one of the first strains in the country; they professed to be from the best birds, but although some two dozen birds were hatched, there was not a respectable bird in the lot, all disdaining to show any white feathers in front of the topknot. My experience of Gold—slight, I allow—agrees with that of the White-crested, but the Silvers, I think, breed much truer, and the produce has in my case been by many years remunerative, even when draughted off to Mr. Stevens's.

It must be confessed, however, that with few exceptions Poland are fair-weather birds, and I must differ wholly from your reply to some correspondent about their being kept in a room; if the room is well ventilated they will succeed. At least, take my experience: I have now been more than nine months in my present home; I am terribly confined for space, and I suppose a less confirmed and hopeless "maniac" would have given up poultry altogether. I have, however, wired off two stalls of my stables for two sets of Poland; each lot has only about 7 feet square. Occasionally, when the horse is out, they are allowed a little larger run, but this is seldom, as I am afraid of cock-fighting. At the outside of the stall is a row of bricks placed on their edges, and the stall filled up with gravel, sawdust being on the top of this; here they dust themselves; their roots are low, and they are provided with green food, &c. As to laying under these conditions, I certainly think they have laid better than they ever did with me before, and they always appear in good health. In Poland I have frequently noticed hens apparently moribund, with wings trailing on the ground, and almost unable to move. Generally this has arisen from some difficulty of passing the egg; this over, and the bird is perfectly and quickly restored. I do not think I have seen this since I have been here.

Now as to being able to keep them thus circumscribed successfully for exhibition, let me premise that I think it unfair to my pets to overdo exhibition, and that I never have sent a bird direct from one exhibition to another, and I do not think I shall try. Since their most my Poland have gone to the following places with the following results:—Chippenham, two pens, first and second prizes; Newport, Mon, one pen, second prize; Plymouth, one pen, third prize; Bristol, two pens, cock

highly commended; hens, silver cup; Portsmouth, one pen, first. These are the only places, and I think I may fairly say that even for exhibition purposes I have kept Polands successfully. I am not quite certain, but I rather believe, that one of our best exhibitors of this variety of fowl keeps large numbers in an old factory; such a place, with plenty of light, I should like to have. The difficulty of insect food can be overcome; green food can be given; gravel and sawdust are capital materials to scratch in, and the birds will always be clean.

One other hint I may give to those who wish to try Polands—give them such a drinking fountain that they can only just get the beak into the water, take care that the sides of the fountain are not wet, or in drinking the topknot is wetted and dirt will stick to it. Then I do not advise tying up the topknot with indiarubber bands, &c.; the bird resents it, and so should we. I apprehend, if our polls were tied up in the same way; so they scratch away till it is either released or drops to the roots of the feathers, where it only does more harm than good. Moreover, the scratching is performed so vigorously, that often the sides of the face are terribly injured. Had I the means of allowing my Polands to run out, I would make it a rule to confine them in wet weather. Wet makes dirt, and a little knob of mud at the end of each feather of the topknot pulls down and alters the natural shape of this distinctive mark of the Poland. I confess to a dislike of the anterior feathers of the crest falling forward; and I like a certain stiffness in the whole crest which makes the central feathers stand straight up, and not fall to either side. This prevents the crest from having a flattened appearance on the top, which I consider decidedly objectionable.

As regards the rearing of Silver Poland chickens, I can quite bear out Mr. Boothby's opinion that they are very hardy. If they run with chickens of other breeds, they are apt to be bullied, as the topknot often prevents their seeing the foe that attacks them, and they run wildly about only to be more pecked, at least if Malays are their companions.

This brings me, in conclusion, to a few words on the Rev. A. G. Brooke's remarks. I, also, believe the despised Malay is looking up. I have had more inquiries for birds than I could supply, and the inquirers were all new names to me. I hope any Show that ventures to arrogate to itself the title of great will not in future ignore their claims to a class. There were three entries in the "variety class" at the Crystal Palace, where it was almost certain the Malay would not be successful; all were highly commended. Yet the Great London Show offered three prizes to the following varieties, with the following entries. Duckwing Game hens, 5 entries; White Cochins hens, 4 entries; Golden-spangled Hamburg hens, 4 entries; Silver-pencilled Hamburg cocks, 4 entries; Silver-pencilled hens, 4 entries; Black Hamburg cocks, 3 entries. If these various breeds are entitled to classes on account of their entries, surely the Malay is, and I venture to affirm that if the Great London Show Committee had had the proper feeling to make a class for Malays, the entries would have certainly eclipsed the classes I mention. May the Great London Show Committee make a note of this, and do their duty better to Malays on another occasion, or mine certainly shall not go for the benefit of Crystal Palace air.

As interesting in the matter of Polands, I beg to add these few remarks to my notes. At many shows, as has been remarked, no class is given to them. At the Torquay and Western Counties first Exhibition, where very liberal prizes were offered, Polands mustered twenty-four pens—more strongly in fact than Cochins, Cinnamon and Buff, 13 entries; Cochins, any other variety, 17; Light Brahmas, 19; Spanish, 16; French fowls, 19; Spangled Hamburgs, 23; Pencilled Hamburgs, 22; Any other variety of Game, 20; Dorkings coloured, except Silver-Grey, 20. These were the only classes where equal prizes were given, with the exception of Red Game and Dark Brahmas, and these headed the list with 33 and 26 entries. In these classes 27 10s. were offered as prizes, and as the entries were 7s. 6d. per pen, it follows that twenty entries were requisite to recompense the Committee for their prizes. A glance will show that Red Game, Dark Brahmas, and Polands, did this with a surplus, the latter variety, now so often refused a class by Committees, being really the third best payer to the Society's coffers. On receipt of their very liberal schedule, I hastened to point out to the very obliging Hon. Secretary that the class for "Any other variety" was wholly omitted. The reply was "no birds"; however, "second thoughts are best," as the Committee wisely advertised this class, offering 26 10s. in prizes. Twenty-eight entries were the result, bringing in £10 10s., so that I do not think the Committee regret having followed my suggestion, and I must confess that I have the additional satisfaction in finding my name amongst the prizetakers in that class,

which certainly should never be omitted from any schedule.—Y. B. A. Z.

### WOLVERHAMPTON POULTRY SHOW.

YOUR correspondent, in his criticism of the Pigeons at the above Show, writes of the Trumpeters, "Every bird in this class had the feathers drawn from the centre of the rose." Were I, as an exhibitor of one of the pens, to allow this to pass unchallenged, it might be thought I had suddenly changed my views respecting trimming, &c. Permit me, therefore, to give to this assertion my most unequivocal denial. I will go even farther, and affirm that not a single feather or stump, of which there were several in the birds' feet, was drawn from either bird previous to their arrival at the Hall. Whether the person penning them performed the office of voluntary trimmer I cannot say; it is not probable.—HENRY VAUGHAN, *Wolverhampton*.

IN answer to the remarks of Mr. Yardley in favour of Messrs. While, Tomlinson, and Graham, I beg to say my notes were made after a careful scrutiny of the birds, and were written without fear or favour to anyone. I think it only fair that your readers should know that some of the birds in question were sold by Mr. Yardley to the parties named.—YOUR CORRESPONDENT.

### THE ANTWERP PIGEON.

I WROTE you some time ago asking you to publish in your Journal a portrait of a "standard Antwerp," to be contributed by our Society, and you very kindly assented. We had a meeting on the subject, and it was decided that all the members, including also a non-member, should bring to a special meeting the best specimens they possessed. About twenty birds were brought, including the two of Mr. Bradley's which appeared in *The Field*, but without any hesitation it was decided by all present, including Mr. Bradley, that my bird, the portrait of which appeared in your Journal, of February 17th, was certainly the best specimen ever seen. The only remark elicited by Mr. Bradley was, that the bird would be "improved" by making his throat below the under beak thicker, like that of his old bird, which has appeared in *The Field*. That point I consider quite detrimental, as the slender arched neck is far more graceful, and I must confess that the bird represented in the figure you have published is superior in this respect, and also slightly thicker in the upper mandible, which should overlap the under mandible slightly. Taking it altogether, and making due allowance for the difficulties of the artist and the engraver, it is a very good specimen, rather underrating the original, and this is admitted by Mr. Hewitt, who has awarded to it the first prize, to the satisfaction of all competitors at the last show of our Society. By mistake the bird is represented with nine flight feathers below the feathers of the second bar, but no Pigeon shows more than seven, and including the first, which is covered by the second being the longest, makes them in all eight. At the last Birmingham Columbarian Society's Show, where, and where only, the birds drawn from by your contemporary had anything like competition, they were unnoticed; and as for the bird which won at Glasgow, it is no more than an ordinary bird, being long and thin-beaked, and quite out of place as a show bird. The two birds, moreover, cannot be "specimens" because they are described, the one as an old bird too heavy for exhibition, and the other not matured yet. Being both deficient, what guides can they be to those who wish to form an idea what a standard Antwerp is?—H. NOYE, *Birmingham*.

### BIRMINGHAM ROLLERS—SKY TUMBLERS.

IN Birmingham, I am told, the flying Tumblers are not called Sky Tumblers, but high-flyers simply; and that the designation of Birmingham Rollers is applied indiscriminately to two distinct classes of this Pigeon, the one a high-flying class, and the other a rollier class of birds. The high-flying class fly high and long as a Sky Tumbler, and tumble but now and then, sometimes single, and at other times double (called a roll), whereas the rollier class soar only to roll down again in a succession of tumbles, like a rope of onions.

The high-flyers (Rollers), I am told, are a crossbred between the pure Roller, whatever that bird is, and the ordinary Long-faced, or our common Tumbler, the Beards and Balbs included. Hence the broken Balbs, semi-Beards, and Pied birds, that distinguish the high-flying Roller class. The object of the cross in reference, is the flying of the Tumbler with the rolling of the Roller combined, and the latter propensity modified, as

appears by the result to be attained; and this is the crossbreed patronised by our correspondent "LEICESTER," who kindly informs me of the fact. The breed is established in Birmingham and Leicester, and elsewhere, and thought a distinct pure breed of high-flying Tumbler, which evidently it is not, though a famous flying and tumbling Pigeon.

What the pure Roller is I can only surmise, and I conclude it to be the European Tumbler, a reputed excessive tumbler, often feather-legged, whence the Birmingham Rollers (high-flyers), half-bred, as stated, frequently inherit their muffed legs.

Our old Sky Tumbler, so far as I can ascertain, is represented by the Macclesfield Tipplers and I Tumblers, such as your correspondent "Brown Red" described. I believe this bird to be the Tumbler (English), distinct and pure, and not mixed with any alien breed of Tumbler. It is not the acrobat the Birmingham Roller is, but it can and does tumble occasionally, not roll, quick as lightning, and at long intervals of flight. The choice of the Macclesfield Tumbler and its half brother, the Birmingham Roller, therefore, is presented to your correspondents and readers, according as they fancy the sorts—equally Sky Tumblers, but differing in their acrobatic feats.

What the Swansea Sky Tumblers are, perhaps Mr. Crook will tell us, if he knows himself. They look like Birmingham Rollers (high-flying class), from description, save the odd eyes, which I am told appear in a class of high-flyers, the progeny of our English Tumbler and the German Magpie Tumbler, the eye having a coarse ring of cuticle around it, much disliked.

We must, I think, admit "OLD DON RILEY'S" sort after all, the Macclesfield bird, to be the true blood for Sky Tumblers, and the Birmingham, Leicester, and Swansea breeds but half blood, though excellent flying Tumblers. The cross of Roller and Tumbler, crossed over again with the Tumbler to give three-fourths Tumbler and one-fourth Roller blood, would be nearer our Tumbler, and perhaps still by the dash of alien blood improve the flying and tumbling properties sought by this combination. "WREKIN" (page 154) is right in his estimate of flying; one and a half to three hours is the best of natural flying, longer flights are artificially attained by training, until the birds become habituated to special flights only.

Nests should be robbed persistently from the end of September to the middle of February or March, for good spring and summer progeny. Alternate nest robbery keeps old birds to their young, and does not weaken old birds so much as having another incubation in charge, before prior nestlings are fledged and off their care. Besides, the nestlings thus are better-reared and stronger birds. In animal or vegetable economy excessive breeding or cropping has the like result—deterioration and sterility—the former, though, productive of more mischief than sterility itself—the one hungering and useless, the other at an end for a new start.—READER.

#### PIGEON-KEEPING.—No. 1.

I MUST begin with directions for erecting a Pigeon loft. Let it be accepted as a maxim that the front should be facing the south or south-west, the warmest quarters; but as a room is seldom built for that purpose solely, it may be proper to observe that any place where there is room enough may be made to answer. Some break a hole through the roof of the house, and there lay a platform of the size they think proper; but, in doing this, particular care must be taken to erect proper fences to keep the Pigeons secure from the cats. Nevertheless, it is essentially necessary to train up a cat on purpose to be kept in the loft; therefore procure a kitten, and as it increases in growth and begins to notice the Pigeons, heat an egg and put it to the cat's nose, and get a dead Pigeon, with which beat the cat soundly. Repeat this two or three times, and the sight of an egg or dead Pigeon nor so intimidate the cat, that it will neither touch the Pigeons nor their eggs, especially if it is well supplied with food. A cat thus broken in will be found exceedingly useful in a loft, and will keep it clear of mice and rats, which are very destructive to the Pigeons and their eggs.

Be careful not to overstock the loft, and always allow at least two holes or breeding places for every pair; for, if they are cramped for want of room, they will not sit quietly nor breed so well as when they have a sufficiency of room allowed them. You will find that out of nine pairs of breeding Pigeons you will scarcely raise one from each pair if you keep them crowded in too small a loft; but in the beginning of September stop them from breeding till the middle of February.

In erecting the breeding places, let the shelves be at least 14 inches in breadth, and the distance between shelf and shelf 20 inches, so that if you have Pouters at any time they may not be compelled to crouch from want of height, and spoil their carriage by getting an ill habit of playing low; let partitions be fixed upon these shelves, leaving the space of 3 feet between each partition, having a board nailed against the front, which serves as a blind on both sides of every partition; and by this method there will be two nests in the length of every 3 feet, and the Pigeon will sit dark and private. Some place a partition in the middle of each nest, which is of service in hindering the young ones from running to the hen and cooling her eggs when she sits at the other side, for in breeding time, when the young ones are about three weeks old, the hen will lay again if a good breeder, and leave the young ones to the care of the cock.

For the easier cleaning out the nests, some have them built without any blind, being entirely left open in front; but as the Pigeons do not like to be disturbed when sitting, and an open-fronted nest is liable to some other inconveniences, I can say nothing in favour of it. Others, again, if the loft will admit of it, strenuously recommend the making of the nests on the floor, especially for the better sort of Pigeons, as being far more convenient than either of the former two in preventing those accidents which sometimes happen to the young Pigeons, by their falling out of their nests, thereby bruising or laming themselves, also as giving them an opportunity of being fed by other Pigeons, as well as their parents, as is sometimes done.

Let every nest be furnished with an unglazed earthen pan or straw basket, both of which are made and adapted for this use, and the size should be in proportion to the Pigeon it is intended for. A pan proper for the Sky Tumbler, or any other small Pigeon, ought to be 3 inches high, and about 8 inches over at the top, sloping like a wash-hand basin towards the bottom, and these dimensions should vary in proportion to the size of the Pigeons. In fixing the pan or basket in the breeding place, put a small wedge of wood or a brick against the front of it, that the Pigeon may get on and off the nest without treading on the eggs.

When the hen has hatched, be careful not to handle the young ones when you want to look at them, for the handling of young Pigeons often brings a scouring upon them. The basket is preferred by some as being much warmer than the pan, and not so apt to crack the eggs when fresh laid; but the advocates for the pan say, that these difficulties are easily obviated by a proper supply of clean straw, or frail made soft and short. The frail, as it is hollow and lasts a great while, is preferable to the straw. When the young ones are able to get out of their nest, take hold of the ends of the frail and shake off the dung and filth, and the frail will be fit for use again.

It is proper in this place to inform the reader that gravel should be sifted on the shelves and floor: the Pigeons are fond of picking it, it is very wholesome for them, gives the loft a more creditable appearance, and makes it much easier to be cleaned than when gravel is not used; besides, in keeping the Pigeons clean, they are cleared from fleas and other vermin.

As for the trap, it is always built on a platform or floor of deals on the outside of the house, and is the common passage for the going out and coming in of the Pigeons; it is made of laths, which should be nailed so closely together as not to permit a mouse to creep through. Some traps are made very small, with a door in the middle and one on each side, which three doors are so contrived that by the pull of a single string all draw up together. This contrivance is chiefly designed to trap stray Pigeons which are lured into it by tempting baits of hempseed, or rape and canary, strewed there for that purpose, and frequently has its desired effect. Some make two small swinging doors on each side of the trap, fixed by wires, called bolting wires, so that any Pigeons may get into the trap but cannot return, also a square hole open at the top, called a tipping hole, which is made to answer the same purpose as the swinging doors; but, unless the trap is so situated as to be quite secure from cats or rats, both these are dangerous contrivances, for either of the last-mentioned animals may by some means as easily enter the trap as the Pigeons can, and if they once find their way in they will make sad devastations among the Pigeons and their eggs.

Some of these places are built so wide and lofty as to allow of eight or ten people at a time standing or walking about in them, have two or three rows of shelves on every side for the Pigeons to rest upon, and are designed to give room and air to those Pigeons which are not suffered to fly abroad. When

these places are so large they are called areas, and are of great service in keeping confined Pigeons in a good state of health.

In order to complete the figure of the loft, it must be provided with proper bottles and stands, and stands for water; also with proper meat boxes. The bottle should be a large egg-bellied glass, one with a long neck, and big enough to contain three or four gallons of water, though the shape of it is immaterial, for a piece of pasteboard hung by a string about 3 inches above the bottle will always hinder them settling on it and rendering the water impure. This bottle should be set upon a three-legged stool or stand, having a hollow at the top for the belly to rest in, that the mouth may descend into a small pan underneath, by which means the water will run from the mouth of the bottle. The reason is obvious, though an explanation would be rather too philosophical, but I advise those who are not yet possessed of this contrivance to make a trial of it, and experimentally prove the truth of my assertions.

The box for the food should be made in the shape of a hopper; and to hinder the Pigeons from soiling the grain, it must have a cover over the top, and then it will serve as a preservative for their food. From hence the food descends into a shallow square box, and this is usually fenced in with rails or small holes on each side, to prevent the Pigeons from flinging the grain amongst their own dung which lies about the floor. Some leave it quite open for the benefit of the young Pigeons, that they may the more easily find their way to it.

SKY TUMBLERS require great attendance, being much more delicate than other breeds, and always used to tender treatment; therefore as some observations on their food are necessary, I shall submit the following:—

The Sky Tumbler may be fed with various sorts of grain, as wheat, barley, oats, peas, horsebeans, vetches, tares, rape, canary, or hempseed; but of all grains old tares and small Indian corn prove to be the best suited to the nature of these birds. New tares should be given sparingly, especially to young Pigeons, as they are very apt to cause scouring, though old tares will have the same effect if by any accident they have been mixed with salt, or damaged by sea water, for though Pigeons are very fond of salt, too much is pernicious.

Horsebeans are esteemed the next best food to tares and Indian corn, but the smaller they are the better. There is a French sort called small ticks, which make good food, but I would advise those who feed their Pigeons with beans sometimes to mix a few vetches with them, and to have all the beans split. Wheat, barley, oats, and peas ought only to be given now and then for a change of diet, as they are very apt to scour the birds.

There is a mixed diet made of tares, beans, and peas, which is called "Scotch meat," with which some fanciers feed their Pigeons for cheapness, but care should be taken that the beans are not too large. Rape and canary, and hempseed, are a diet that Pigeons are immediately fond of, but this, for many substantial reasons, must not by any means be made a constant diet.

In treating of the diseases relating to Sky Tumblers, &c., I shall chiefly state my own experience, as I have spared no pains to make myself acquainted with the diseases of these birds and to apply the best method of cure; therefore without further apology I shall take for a commencement—Corruption of the egg in the oviduct; the wet roop; the dry roop; the canker; the gizzard fallen; the naivel fallen; the vertigo; the flesh wen; the bone wen; and the core.

I shall then speak of the best methods of preventing Pigeons from leaving their habitation; give instructions for coupling and matching Sky Tumblers, &c.; and add instructions to young beginners how to couple and match their Pigeons.—*Wm. Crook, High Street, Swansea, South Wales.*

## BIRMINGHAM PHILOPETERISTON SOCIETY.

The fourth Show of this Society took place on the 3rd inst., at the Athenæum Hall, and was, as a whole, a most successful meeting. The Carriers were magnificent, the best bird of this breed winning not only the first prize in its class, but two silver cups in addition. The opportunity of winning so much with a single bird of course caused a heavy entry, and as a whole perhaps a better lot of Carriers has never been exhibited at one time in Birmingham. The Ponters were scarcely less praiseworthy, and of Almonds, although limited in number, the quality was good. Nothing better need be hoped for than the Foreign Owls. Of Barbs, the Black were especially good. Most of the Faults were shown in anything but first-rate condition. The Dragons were of very high character, but of the Antwerp, the birds entered for competition for prizes were not equal to those shown at former

meetings of this Society. Among seven large cages shown by Mr. Yardley, not for competition, was a cage devoted exclusively to Antwerps, and among these were some extraordinarily fine specimens. The silver cup, competed for by the "Any variety class," was won by an excellent pen of Egyptian Swifts, a very extraordinary breed of Pigeons, so called from their great extent of wing. The hen on being measured was found to be 16 inches from tip to tip of the extended wings.

Very unfortunately for the friends of the Society, the day was disastrous in the extreme, with continuous heavy rain. The arrangements were well managed, and as a proof that all concerned were ready and willing to give a helping hand, we call attention to the following fact—The Show was by rule closed punctually at 9 p.m., and before ten o'clock every Pigeon was sent home, the show cages all removed, and the key of the rooms again returned to the proprietor's agent; such punctuality and dispatch are worthy of comment.

CARRIERS.—*Cock*,—1, Cup, and extra Cup for the best pen in first six classes, G. F. Whitehead, Kings Heath, Birmingham. *Lark*,—1, Cup, H. Yardley, 2 and 3, J. F. White, Birmingham. *Hen*,—1, J. Watts, Kings Heath, Birmingham; G. Hodgkinson, Edlington. *Hens*,—1, F. Smith, Solly Oak, Birmingham; G. F. Whitehead, 2, J. F. White, 3, H. H. Nightingale, Aston, 4, G. Hodgkinson.

POUTERS.—*Cock*,—1, 2, 3, and 4, G. Sturgess, Leicester. *Hens*,—1, 2, and 3, G. Sturgess.

TUMBLERS (Almonds).—H. Adams, Beverley. 1, 2, 3, F. J. Fielding, jun., Rochdale. 4, T. Tomber, (Ball and Beard),—1, J. Fielding, jun. 2, 3, and 4, F. Graham.

SCOTCH MEAT.—Any other variety,—1, J. Fielding, jun. 2, H. Adams.

JACOBIUS.—1, G. Sturgess, 2, J. Watts.

QUEEN.—*Queen*,—1, and Cup, J. Fielding, jun. 2, H. Adams. *Hen*, G. F. Whitehead. *English*,—1, J. Watts, 2, G. F. Whitehead.

BARBS.—1 and 2, J. Fielding, jun.

FAVORITE.—1, G. Sturgess, 2 and 3, F. Graham.

TUMBLERS.—1, T. Robson, 2 and 3, E. Benrose, Derby.

NEWS.—1, F. Graham, 2, G. F. Whitehead.

TRUMPETS.—1 and 2, T. Robson, 2 and 3, E. Benrose.

DRAGONS (Black).—1, F. Graham, 2, E. Benrose.

DRAGONS (Yellow).—1, Cup, 1, and 2, F. Graham.

DRAGON (Any other colour).—1, H. Adams, 2, F. Graham, 3, J. Watts.

ANTWERPS.—1 and 3, J. E. Cleveland, 2, H. Claeis, Birmingham. *Ac*, J. Watts, *Cock*,—1, F. Smith, 2, J. E. Cleveland, 3, E. Benrose.

SWISS.—1 and 2, J. Watts.

MAJOR.—1 and 2, T. Robson, 2, E. Benrose.

ANY OTHER VARIETY.—1, Cup, and 2, G. Sturgess, 2, E. Benrose (Fribbacks).

3, J. Watts (Males), 4, H. H. Nightingale, 5, G. F. Whitehead.

SINGLE BIRD (Any other variety).—1 and 4, G. Sturgess (Black Barb), 2, H. Adams (Almonds), 3, T. Robson (Red Turbot), 3, J. Watts (Black Barb), 6, E. Benrose (German), 7, G. F. Whitehead (White Horseman), 8, F. Whitehead (Black Swallow), T. Robson (Black Magpie), 9, F. Smith (Black Barb).

BADGES.—1, 2, and 3, H. Stropston. *Black*,—1, H. Claeis, 2, H. Stropston.

*Silver*,—1, 2, and 3, H. Stropston. *Blue*,—1, G. F. Whitehead, 2, and 3, G. Hodgkinson. *Any other colour*,—1, G. Hodgkinson.

SINGLE LIZARD (Flying, Any variety).—1, H. Stropston, 2, H. Claeis.

The Judges of the *Fancy Pigeons* were Mr. Hewitt, of Sparkbrook, and Mr. Yardley, of Birmingham; Mr. Arthur Walther, of Birmingham, awarding the prizes for *Flying Pigeons*.

## BALDION CANARY SHOW.

THIS was held on the 26th of February, and although not numerous the birds were very choice. Belgians were excellent, and the first prize birds would be very difficult to beat. Jonque Norwich were very fair, but Buff Norwich were not up to the mark. Crested or Turuncorn Canaries were excellent classes, and all the birds deserved prizes. The Clear Yellow Yorkshire were of extraordinary length, with splendid standing properties, and the Buff equally good. Of the Marked Yellow, the first and second prize birds were good; the Buff Marked were perfection, but very dirty. Golden-spangled and Silver-spangled Lizards were of high merit. Jonque Marked Goldfinch Males were very inferior. The Buff Males were very fair, the Linnet Males inferior, and in the class for any other variety of Males, the first prize bird was one of the best ever seen. It has taken first prizes at the largest shows in England, and should it keep its colour it will take many more first prizes. Goldfinches were very good, and the first prize bird as fine a specimen as it is possible to find. A silver snuff box presented by Mr. Denby for the best Mole of any variety, was awarded to Mr. W. Heap's Bullfinch and Goldfinch Mole.

BELGIANS.—*Clear*,—1, I. Rawnsley, Bradford, 2, J. Ellis, Baldion, *Ac*, W. Hutton, Baldion, 3, W. Heaps, Bradford. *Clear Bug*,—1 and *Ac*, W. Shackleton, Blyth, 2, W. Heaps, 3, T. Burdick, Bury.

NOVICES.—*Clear Jonque*,—1 and 2, W. Heaps, 3, W. Nowell, Baldion.

*Bug*,—1 and *Ac*, W. Heaps, 2, I. Rawnsley.

SILVER SPANGLED.—*Yellow Clear*,—1, J. Fawcett, Baldion, 2 and 3, I. Rawnsley, *Ac*, W. Heaps. *Clear Bug*,—1 and 2, I. Rawnsley, 2 and *Ac*, W. Shackleton.

GOULD.—*Clear Yellow*,—1, W. Heaps, 2, I. Rawnsley, *Ac*, E. Baxter, Bury, *Clear Bug*,—1, I. Rawnsley, 2, T. Fawcett, *Ac*, W. Heaps, 3, J. Ellis.

MARKED.—*Yellow*,—1, Stephens & Burton, Middlesbrough, 2 and 3, E. Baxter, 4, W. Heaps, 5, I. Rawnsley, 6, J. Fawcett, 7, J. Ellis, 8, E. Emmott, 9, J. N. Harrison, Belper.

LIZARD.—*Gold-spangled*,—1 and 2, I. Rawnsley, *Ac*, Stephens & Burton.

SILVER SPANGLED.—*Clear*,—1, Stephens & Burton, 2 and 3, I. Rawnsley, 4, J. N. Harrison.

NEWS.—*Marked* (Marked Yellow)—1 and 2, W. Heaps, 3, T. Nowell, Goldfinch, Marked Lark, E. Hawman, Middlesbrough, 2, T. Bernard, *Ac*, and 3, W. Heaps. *Linnet* (Any variety)—1, G. Burniston, Catterick, 2 and *Ac*, W. Heaps. *Any other variety*,—1 and 2, W. Heaps.

GOULDS.—1, J. Ellis, 2, W. Heaps, 3, J. A. Webster, 4, J. N. Harrison, 5, J. Fawcett, 6, W. Heaps, 7, I. Rawnsley.

Mr. James Taylor, Middlesbrough, was the Judge.

## PROPOLIS FORTIFICATIONS.

IN answer to "THE BEE-HIVE," whose inquiry respecting propolis fortifications appeared in "our Journal" of the 17th

ult., I may state that I have seen two instances. The first occurred twenty years ago. A weak bee was attacked by robbers in the autumn, and the bees fortified their entrance with a dark grey waxy substance, leaving a round hole in the centre so small that a worker bee only could pass. The last instance happened in the autumn of 1868, when the bees of a strong old stock nearly built up the entrance of the hive, but a slit in the bottom board gave sufficient passage underneath.—*Geo. Wilson, Wharton.*

### AN OLD ERROR REVIVED.

In a recent letter from the special correspondent of the *Daily News* I find the following revivification of an oft-repeated blunder:—“That the praises I have vented on the Californian climate are not exaggerated may be inferred from this circumstance. It was some time after settlers had flocked here from other parts of the American continent and from Europe, before the honey bee was introduced. This useful little insect soon made itself at home, and filled hives with honey. After a year or two had elapsed the store of honeycomb was diminished to a minimum. The bees found that as flowers were in bloom all the year round, there was no necessity for laying up a large supply of honey against a barren and blossomless winter season. Consequently, arrangements had to be made to deal with the bees as with hens, abstracting the honey in small portions in order that the formation of the honeycomb may go on uninterruptedly.”

The true explanation of the latter part of the above paragraph may probably be found in the fact that movable-comb hives, and with them an improved system of bee-keeping, have recently been introduced and very generally adopted throughout California.—*A DEVONSHIRE BEE-KEEPER.*

### OUR LETTER BOX.

**TAILORING (Norus Amicus).**—Your remarks would tend to more injustice than those you nominally vent upon. There are many persons unjustly “Reverend” who are not in the clergy list.

**GAME BANTAMS’ LEGS (Yellow).**—There is no colour for the legs of a Game Bantam that is more correct than another. We believe the most popular colour is the yellow. Yellow is quite as correct, and more rare, but it is not so much liked.

**BRAMA COCK SINGLE-COMBED (A Friend).**—A single comb is a great disadvantage to a Braham cock, and if the bird were pitted against peacocks it would act as a disqualification. The crooked bill is probably an accident, and would be regarded as such. It is a great defect for a Braham to be small, but that must be overlooked on account of the peacock.

**SPANISH HEN WITH TENDONS UNDER EYES (Nix).**—Spanish are subject to the disorder you name, and it is almost always incurable. Open one of them; if it is full of cheesy matter there is no cure for it. It will close the eye, and eventually destroy it. Bathe it freely with hot water.

**BRAMA’S LEGS (R. P.).**—Your letter arrived too late to be answered last week. Braham’s legs should be feathered all the way down. The points of both Dark and Light are alike as regards shape. The latter in colour should be dead-white, with light and tail black, and back and striped black and white. The legs should be bright yellow. Vulture hooks are not admissible.

**GAME BANTAMS’ TOES (Idem).**—The Game Bantam cock cannot be pured with all but five toes on each foot. It is more than a serious fault, it is a disqualification. Get rid of him, or else, as faults are more surely transmitted than merits, his produce will have five toes on each foot fully developed.

**POINTS OF GOLDEN-PENCILED HAMBURGERS (Chester Subscriber).**—The Golden-penciled Hamburg hen should have a clear black. The body should be pencilled all over. Perfect feathers should have two spots on each, five on each side of the shaft. These, when laid one on the other all over the body, form the pencilling. The feet are must be round and quite white; the comb full of points, turning up behind, and firm on the head. The tail should be pencilled to the end, and the whole body pencilled. Any rumber of colours or mousing must be avoided. The pencilling should not be very large. The legs of both sexes should be taper and leaden-bone. The cock should have the comb and deaf ear like the hen. He should be red-brown all over; the tail and sickle feathers should be black, edged with bronze. The cock has not recovered the operation. It takes a long time to do so.

**WHITE POLANDS WITH BLACK CRESTS (J. Bruce).**—We are very sorry we cannot help you in any way. We believe they are not to be had.

**DARK AND LIGHT BRAHMA POOTRAS (T. S. J.).**—It is a matter of fancy, and one is as pure as the other. For choice we prefer the speckled, but not the whitewashed breasts, and, if compelled to give an opinion, we should give them first place.

**HENS NOT BROODY (Idem).**—There have been no broody fowls, because the severity of the season has stopped their laying, and they are not broody till they have laid all their eggs. You need only a little patience and feeding is very good, but as the weather becomes warmer you may discontinue the beer.

**VULTURE-HOOKED BRAHMA HEN (Brahma Pootra).**—An answer in our last number will tell you the probable results of breeding from her. Like will produce like in all organised creatures.

**TIME OCCUPIED IN SITTING (J. Y.).**—The hen of all kinds of gallinaceous fowls, from the Bantam to the Cochise-Chio, sits for twenty-one days; Ducks of the usual breeds twenty-six to twenty-eight days; Maccory Duck often thirty-five days, but the Muscovy sits less, from thirty to thirty-five days; Guinea fowl, from twenty-eight to thirty days; Turkey, twenty-eight days; Pea fowl, from twenty-eight to thirty days.

**SKY TEMPLES (J. Messenger).**—Mr. Crook will publish a series of notes upon these Pigeons in our Journal; his first article you will find in a previous column. We presume that you overlooked our weekly notice that our correspondents are not to send in their private letters; information required from them can be obtained through our columns.

**MULE CANARIES BAREEN (A. H. G.).**—“They will not breed.—W. A. B.”

**SONG OF EXHIBITED BIRDS (G. H. Rymer).**—The birds are judged for beauty of plumage, quality, and condition, and not for singing. It does seem strange to many that one of the most interesting features in the character of birds are essentially “soot.” Birds should be ignored, but the fact is that the musical department is in the hands of a separate branch of the “fancy,” whose whereabouts may be ascertained from the columns of *Birds’ Life*, where may be seen announcements of copper fetters to be sung for by Goldfinches, “most ones in the month.” Whatever that may mean. With such we hold no fellowship. Bechstein, speaking of the Redpoll (page 260), says, “It is a very affectionate bird, constantly expressing not only its own mate but even Lincoets, Goldfinches, Siskins, and Canaries. It confided in the same cage with it, and therefore, not improbable that it might be inclined to pair with it, if not all of these.” It is not too early to begin to breed in the middle of March.

**THIRD GOLDFINCH AND BELFISH (A Subscriber).**—Pair the Goldfinch and the Belfish early in the season, till the male may become acquainted with each other. Furnish the hen with a nest-box suitably large, but at the same time at or about the time when you may expect her to lay, fill the bottom of the cage with soft earth so that she will be as likely to lay her eggs as in the nest-box. In the same cage, if you wish, you are satisfied by company is no longer requisite, or he will speedily demonstrate that it is neither requisite nor desirable, for unless he be a most discreet bird he will assuredly break every egg. Remove the eggs and place them in a warm place, and a few days later, if you wish, you may feed with egg and bread crumbs, or egg and crushed hempseed, and look forward hopefully to rearing a winner in the “Any other variety” class of Mules.

**RAW SILK (B. O. S.).**—Write to Mr. Leonard Harman, jun., Old Catton, near Newark.

**EGG OF A SUBSCRIBER.**—If it melts away in frying, it probably is owing to the pigs being fed largely on milk. The fat is made firmer by feeding partially on peas.

### COVENT GARDEN MARKET.—MARCH 9.

We have no chance to report, as the supply is almost adequate to the requirements of the trade, and the provincial markets are quiet. The varieties of dessert Pears are now few, and consist chiefly of *Ne Plus Meuris* and *Beurre de Rime*. Apples comprise American Newtown Pippins and the English varieties in season.

#### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	shave	8	d.	0	0	0	0	0
Apricots.....	lb.	0	0	0	0	0	0	0	0
Cherries.....	doz.	0	0	0	0	0	0	0	0
Oranges.....	doz.	0	0	0	0	0	0	0	0
Peaches.....	doz.	0	0	0	0	0	0	0	0
Carrots.....	1	shave	0	0	0	0	0	0	0
Black.....	doz.	0	0	0	0	0	0	0	0
Figs.....	doz.	0	0	0	0	0	0	0	0
Pine Apples.....	lb.	8	d.	0	0	0	0	0	0
Filberts.....	lb.	0	0	0	0	0	0	0	0
Cobs.....	lb.	0	0	0	0	0	0	0	0
Gooseberries.....	quart	0	0	0	0	0	0	0	0
Grapes, Hothouse.....	lb.	0	0	0	0	0	0	0	0
Legumes.....	1	shave	0	0	0	0	0	0	0
Melons.....	each	0	0	0	0	0	0	0	0

#### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	doz.	2	0	0	0	0	0	0	0
Asparagus.....	1	shave	0	0	0	0	0	0	0
Beans, Kidney.....	doz.	0	0	0	0	0	0	0	0
Broccoli.....	doz.	0	0	0	0	0	0	0	0
Brussels Sprouts.....	doz.	0	0	0	0	0	0	0	0
Cabbages.....	doz.	0	0	0	0	0	0	0	0
Caulicuffs.....	doz.	0	0	0	0	0	0	0	0
Carrots.....	doz.	0	0	0	0	0	0	0	0
Cauliflower.....	doz.	0	0	0	0	0	0	0	0
Celery.....	doz.	0	0	0	0	0	0	0	0
Coleworts.....	doz.	0	0	0	0	0	0	0	0
Cucumbers.....	each	2	0	0	0	0	0	0	0
Endive.....	doz.	0	0	0	0	0	0	0	0
Fennel.....	doz.	0	0	0	0	0	0	0	0
Garlic.....	doz.	0	0	0	0	0	0	0	0
Herbs.....	doz.	0	0	0	0	0	0	0	0
Horseshall.....	doz.	0	0	0	0	0	0	0	0

### POULTRY MARKET.—MARCH 9.

THERE is an indication of a rise in prices, and the severe weather will, doubtless, make young poultry scarce for some time.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls.....	3	6	4	0	0	0	0	0	0
Small ditto.....	3	6	4	0	0	0	0	0	0
Chickens.....	2	0	2	6	0	0	0	0	0
Geese.....	7	0	7	6	0	0	0	0	0
Cock Turkeys.....	0	0	0	0	0	0	0	0	0
Ducklings.....	3	6	4	0	0	0	0	0	0

## WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 17—23, 1870.	Average Temperature near London.			Rain in last 48 years.		Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.				
			Day.	Night.	Mean.	Days.	m.											
17	Th	Meeting of Royal and Linnean Societies.	52.0	32.5	42.3	13	11	af 6	6	af 6	5	af 6	32	af 6	16	8	20	76
18	F		49.9	33.0	41.5	13	9	6	8	6	32	7	58	6	16	8	12	77
19	S		50.9	33.0	41.9	15	7	6	10	6	56	8	22	7	17	7	54	78
20	SCN	3 SUNDAY IN LENT.	51.1	33.8	42.5	17	5	6	11	6	31	10	48	7	18	7	29	79
21	M	Meeting of Entomological Society, 7 P.M.	50.7	32.5	41.6	19	3	6	12	6	42	11	17	8	19	7	18	80
22	Tu		50.4	34.3	42.3	20	1	6	14	6	morn.	51	8	20	6	59	81	
23	W	Meeting of Society of Arts, 8.30 P.M.	51.7	33.1	41.9	18	59	5	15	6	55	0	81	9	21	6	51	82

From observations taken near London during the last forty-three years, the average day temperature of the week is 50.8°; and its night temperature 33.2°. The greatest heat was 69°, on the 19th and 20th, 1836; and the lowest cold 16°, on the 20th, 1845. The greatest fall of rain was 1.11 inch.

## ORCHARD-HOUSE POTTED PEACH AND NECTARINE TREES.



HE culture of Peach and Nectarine trees for fruiting in pots does not receive the amount of attention which the importance of the subject deserves; amongst practical gardeners the system does not obtain much favour, for it is generally believed that fruit of better quality can be obtained with less attention from trees planted out and trained to the usual trellis. Fruit trees in pots, it is true, require unremitting attention as regards

watering, especially during the stoning period and onwards; but, on the other hand, pinching the growing shoots of pot trees is a much more agreeable and less laborious occupation than training them to wires fixed about a foot from the glass. Greater variety can be obtained if the trees are grown in pots; undesirable varieties can be removed easily, and their places supplied with superior sorts; and, what is of most importance, fruit of as good quality can be obtained from pot trees as from trees planted out.

I have had no experience with the forcing orchard house—that is, to have fruit ripe in May and June, but with the recent early varieties of Peaches raised by Mr. Rivers not much forcing would be required to ripen fruit on the 1st of June. Last year in January I moved all the Peach and Nectarine trees into the orchard house—they had been out of doors for the previous three months—and with just sufficient heat to keep out frost and cause a circulation in dull days, Early Beatrice Peach was ripe in the last week of June. It was followed immediately by Early Rivers, next by Early York and Dr. Hogg; while Princess of Wales, and Lord and Lady Palmerston succeeded the midseason varieties. Lastly, Comet and Salway, two very good yellow-fleshed varieties, were gathered in October. Thus a constant succession of Peaches was obtained from June to October from one house.

There is more room for improvement in Nectarines. Hunt's Tawny is the earliest, but it is only second-rate as regards flavour. Mr. Rivers, of Sawbridgegorth, has raised and is sending out a new early variety called Lord Napier; it is said to be earlier than Hunt's Tawny, and of good flavour; if so, it will be a great gain. These are succeeded by Early Murrey, an excellent Nectarine; Violette Hâtive, Balgowan, Pine Apple, and a very good variety with large fruit, Violette Rouge. The last to ripen, about the first week in September, were Prince of Wales and Victoria.

Thus the Peach season is continued from the last week in June until the first week in October, and the Nectarine season from the middle of July until the first week in September.

I will describe in detail the treatment of the trees from the time they are purchased in the nursery until the fruit is gathered. To begin with what are termed "maiden trees"—that is, trees one year from the bud, they ought to be selected in the nursery, and sent home in November.

Three months previous to this the compost ought to be prepared for them; it should consist of six parts turfy loam to one part of a mixture of equal quantities of cow and stable manure. The pots which are most suitable are from 10 to 11½ inches in diameter inside measure. They must be properly drained, putting in the crocks carefully, and covering them with some fibrous material shaken out from the turf. It is of the utmost importance to secure good drainage, as the trees will remain in the same pots for two years. If they are potted in November, and plunged out of doors, they will not require further attention until they are removed into the orchard house about the 1st of February.

The trees must be pruned when the buds begin to swell, which will be in February. The young trees generally consist of one leading shoot more or less furnished with side shoots; cut the leading shoot over at 3 feet from the surface of the pot; and the side shoots are shortened back, leaving on the lowest shoots four or five buds, on those near the top about two buds. The growing shoots ought to be pinched about three times during the growing season; the last pinching to be about the end of July. A little experience and some judgment are necessary here. There is danger in too close pinching, as numbers of shoots will be formed which must be thinned-out, and at the last pinching the weakly shoots ought not to be stopped, as they have for the most part none but flower buds, except the terminal bud; consequently, if that is pinched off the shoot will die down to the base. If there are too many shoots, the best time to thin them out is in autumn, some time before the leaves begin to change colour. This will give the remaining shoots an opportunity to ripen.

About the first week in October, most of the leaves having fallen, the trees are turned out of doors, and the orchard house filled with Chrysanthemums. I have always placed the Peach and Nectarine trees out of doors, and never yet failed in securing good crops of fruit in the following season. I fancy it is beneficial to the trees. If the material in which they are plunged be moved, even in the dead of winter, the roots are found to be active, especially in the case of trees budded on the Almond stock.

The trees are placed in the house in January; and if it is heated, the pots will not require to be plunged to preserve them from the frost. In either way the trees will require little attention until the blossoms are expanded, except seeing that no tree shall suffer from want of water. During the flowering period, the house must be kept as dry as possible, and the ventilators opened a little at night if the weather is at all favorable. Continued dull cold weather is the most injurious at this time. If the house is artificially heated, there will be no danger, as the fire can be kept going by day as well as at night.

There are some varieties which do not set their fruit freely—for instance, Late Admirable, Walburton Admirable, and Salway. I find they set their fruit more freely if with a small brush the pollen is removed from a free-setting variety, such as Royal George or Bellegarde, and applied to the stigma of the shy-setters.

As soon as all the fruit are set, it will be time to com-

mence syringing the trees. This ought to be done thoroughly, as in no other way can red spider be kept at a distance. For the first two or three weeks syringe once a day—the morning is the best time—and as soon as the fruit has somewhat swelled syringe night and morning, shutting up the house at four o'clock in the afternoon. Peaches and Nectarines will bear a considerable degree of heat, especially after stoning. When the house is syringed at 4 p.m. and shut up, the temperature may rise with sun heat to 90° or 95°, and the trees seem to like it.

The first year of fruiting much cannot be expected from the trees; from six to twenty fruit will be quite as many as ought to be allowed to arrive at maturity.

After the fruit has been gathered and the wood ripened, which will be in October, the trees are again moved out of doors. Previous to this, in fact as soon as the fruit are gathered, the trees are shifted into larger-sized pots. Those in 11-inch pots are shifted into 13-inch pots, and so on in proportion. A 15-inch pot is the largest size used. I pot them every second year, and have repeatedly reduced the ball of roots when the trees have been in full leaf, potted again in the same-sized pot, and have not observed any difference in the crop of fruit in the following year. If the weather happens to be dry and unfavourable at the time of potting, the house is kept rather close, and the foliage as well as the house moist, by syringing three or four times during the day, until fresh roots are formed, which will be in two or three days.

An orchard house can be erected even more cheaply than most other glass structures, and none can be more useful or interesting if the trees, plants, and flowers which are kept up in succession are well managed. No doubt the trees are sometimes badly managed; their culture is yet imperfectly understood. Even this year a contemporary journal warns its readers to avoid them, as Peach and Nectarine trees in pots are mere toys, and of no practical value. Let the same amount of attention be bestowed on them that there is on some other plants in pots, as in all fairness there ought to be, before people condemn them. The attention will be well rewarded, not only by that which is good for food, but also by that which is pleasant to the eye, and a source of interest and instruction at all times.—J. DOUGLAS.

### TANKS FOR BOTTOM HEAT.

PERHAPS my experience with tanks for bottom heat may be useful to some of your readers, as no one seems to have tried the material of which mine is made. I do not wish to set myself up as giving advice in opposition to Mr. Pearson, as I quite agree with him, that if you have hot-water pipes running through your house, any description of bottom heat—i.e., either dry or moist heat, can be had with far less trouble than by having a tank. But, perhaps, many of our amateur friends, like myself, may have only the "old-fashioned fire" in their houses, and, when that is the case, of course there must be some other means adopted to provide bottom heat for raising tender seedlings, cuttings, &c.

My first tanks were made of wood, but they only lasted a few years, and were constantly annoying from their leaking propensities, and, as Mr. Pearson says, "generally when most inconvenient." However, having seen many cisterns and baths made of slate, I resolved to try it for a tank; and as I only wanted a small one, I invented a cheap boiler on a small scale from a piece of 4-inch iron piping, by having both ends closed with an iron plate and screwed in, and then 1-inch iron pipes, about a foot long, fixed one at the end near the bottom, and the other, with a bend in it, on the top side of the 4-inch pipe, for the flow pipe. These were connected with the tank by some 1½-inch lead piping for the flow, and 1-inch piping for the return pipe. My boiler is fixed across the furnace, the fire passes under and behind, and then over the top, where it divides and passes into a small flue on each side. Although the apparatus must be eight or ten years old, I do not think it has cost me above 5s., and I can heat the tank alone with a very small fire. It has answered every purpose as regards the propagation of softwooded plants and raising seedlings, or starting such plants as Gloxinias, Achimenes, and Caladiums.

The slate is about 1½ inch in thickness, the bottom projects 1½ inch all round, and the sides beyond the ends, so that both are let into grooves in the bottom, and the ends into the sides. These grooves are filled with dry red lead mixed with white lead into a stiff paste, and every crevice made secure; then screw bolts are fixed through the sides about 4 inches from the top,

outside the ends, from front to back, with washers on to prevent damage to the slate, and a screwed nut brings all up tight and firm. The flow pipe is inserted in the end nearest the boiler, 2 to 3 inches from the bottom, and 5 or 6 inches from the front, and the return pipe about as near the back, and at a rather lower level.

To keep up the large slates on which the plunging material is placed, I fixed a wooden frame all round inside the tank at the height I wished them to be, and a partition down the middle, almost to the other end, to make the water flow the full length of the tank before returning.

The tank has never leaked but once, and that was owing to a new stoker, and he put so much fire on that the layers of slate near the flow pipe seemed quite to open, and the water ran out almost in a stream. I raked out the fire and let it gradually get cold, and I have never had any trouble with the tank since.

I generally use sea sand for plunging in, as it is clean, and does not harbour insects so much as many other materials do.

My tank is only about 6 feet long by 2½ feet wide, by 9 inches deep, but of course one can be made almost any depth, although it is not often you meet with slabs above 6 or 7 feet long, yet I have no doubt they could be made larger if ordered from the quarries; at any rate, there could be two or three tanks connected together with pipes if needed. Any slater who can make and fix a slate bath could procure such a tank, and I think the charge is about 6d. per gallon on the cubic contents, or he will make it at a stated price.

I have often wondered that no one, if my memory serves me rightly, has ever recommended slate for the construction of tanks, as it is far cheaper, more durable, and less likely to leak than either wood or cement-lined tanks, and iron is expensive and soon corrodes, unless a few good coats of red lead paint are put upon it previous to use.—J. R. J.

### CULTURE OF SINGLE RUSSIAN VIOLETS.

It is well at this season to give a thought to the winter that is past, and to recall any failure in the supply of garden necessities which may have occurred, with a view to future remedies.

One of the best and most useful winter-flowering plants is the single Russian Violet, its hardy nature enabling it to grow and blossom through all the vicissitudes of our climate in winter. Snow storms and frost may, and do give it a slight check, but it endures the sun but obtains sufficient mastery to thaw and disperse snow and frost, and the Violet buds spring up from under the sheltering foliage, and give forth abundant blossom and perfume. When the frost sets in, if there are many flowers expanded, they will apparently pass through it all unscathed, but on picking them it is found that their charm is gone, the cold having robbed them of every trace of perfume. Such being the case, it is important that some suitable protection should be given to so valuable a flower; I say it is important, but I may safely go further and observe that protection is necessary, for so highly are the sweet flowers esteemed that any failure in the supply is quite certain to be noticed.

The mode of culture which enables me to keep up an abundant and uninterrupted supply of these charming flowers from October to March presents no new or striking feature; but as the results obtained are very satisfactory, it may prove useful to those who have experienced any difficulty in keeping up a full supply. That the simple method I am about to detail has not been so generally adopted as it deserves, I have had proof in more than one instance during the past winter. Calling upon a friend in January, I found him depending for his supply of Violets upon some Neapolitans in pots, and lamenting his inability to meet the requirements of the family; a chat about the utility and culture of the single Russian variety, and a promise of some plants, tended materially to relieve his anxiety in regard to future failures.

For the plants kept entirely in the open air, a border in a warm sheltered position is selected; the soil is stirred deeply, and brought as nearly as possible to the condition of a rich sound loam, in the case of very light sandy soil by the addition of a quantity of rich manure and some loam if it can be had, and on soil of a heavy, wet, or clayey texture by an abundant admixture of sand and leaf mould. Towards the end of March, as the plants go out of bloom, stout young offsets are taken off and planted in the prepared border a few inches apart, in beds a yard wide, with alleys or paths a foot wide

between the beds. From these narrow paths the beds are kept weeded, the plants watered during summer, and the blossoms gathered in winter, without trampling on the soil among the plants. From such beds, when the weather is at all mild and open, Violets are picked abundantly, for with the mercury a few degrees above the freezing point, plants so situated flower quite as freely as others having the protection of a wooden frame with glass lights.

But it is during the prevalence of such severe weather as we experienced in February that the value of protection is appreciated. The plan followed here is to mark out, on the prepared border, beds a few inches smaller than the boxes intended to be used, and they are filled with young plants in precisely the same way as the open-air beds, which they are, in fact, till covered by the boxes with glass lights, which is not done till October. The lights are drawn off whenever the weather is mild and open, and are kept on closely in frosty weather, or during the prevalence of cold cutting winds. Finely-sifted coal ashes are scattered on the narrow paths between the open beds and around each box, giving a neat appearance to the whole, and preventing the damp soil from adhering to the boots when the Violets are picked.

Orchard houses are, perhaps, the best places for winter Violets. Persons having large roomy orchard houses can grow their stock of plants through the summer in the nursery or open garden, then early in October lift each plant with as large a ball of soil as possible, and form a bed of them in the orchard house, by placing the plants near each other on the border, packing them tolerably firmly in some light rich soil, only taking care not to overcover them, but leaving ample room for a free circulation of air around each plant as a safeguard against damping.

It is evident, from the success that attends the mode of culture here described, that this hardy plant requires generous treatment, but no coddling; only let this be the annual process, and there need be no complaints of failures in keeping up a full supply of these useful flowers in their season.

If seedlings plants are preferred (and they certainly grow somewhat more strongly than offsets, while they flower quite as freely), the seed is sown early in March in the open border, and the young plants, when large enough to be handled, are transplanted to the prepared beds.

Red spider often attacks the foliage in summer, but a plentiful dusting of root is a sure remedy.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

### NAMING NEW PLANTS.

COULD not a board of horticulturists be instituted for the purpose of naming new varieties of plants? Whoever is it that gives such names to plants as *Pyrethrum "Tehihatchewii"*? It seems to me that the only way to pronounce this word properly, is to give a good sneeze, and of that sort of thing I am sure most of us have had quite enough during the last two or three months. Another charmer is *Solenum "Warsewiczioides"*. Talk about societies for the prevention of cruelty to animals, I think we want one for the prevention of cruelty to human beings in giving them such jaw-breaking words to pronounce. It would be a nice calculation for a medical student to find out how many sets of muscles are brought into action in order to pronounce this word of sixteen letters. Can you do anything in the matter?—J. F. C.

### CONIFERS REPLACING THEIR LEADERS.

PENRITH me to supplement Mr. Robson's interesting remarks by detailing a case occurring under my own observation.

Some nine years ago I planted on one of the lawns here a thriving young *Picea Pissapo*, about 3 feet high, having a very good ball of soil and roots attached to it; but during the subsequent three years it remained almost in a state of quiescence, and the leader became blind. Eventually, however, a new leader was formed about 12 inches from the ground, which, during the succeeding three seasons, made very good progress, when, unfortunately, a squirrel bit off its point. However, one of the sprouting laterals near the injured point undertook the leadership by making 14 inches of vigorous vertical growth during the ensuing summer, and 16 inches last season. It is now 12 feet high. I may also remark that, contemporaneously with the foregoing tree, its fellow, both in size and age, was planted in the pleasure grounds here, but in a more sheltered position,

and has flourished satisfactorily. Last season, however, from some inexplicable cause the leader refused to extend itself. Accordingly I trained one of the young side shoots of the current year's growth as a new leader; it did not, however, assume so vigorous a growth as that of its predecessor, which I am inclined to attribute to drought at the root: hence, also, the latter may have been checked from a like cause.

I may, in conclusion, mention another case—namely, that of an *Abies Nordmanniana*, whose leader after the transplanting remained for a year in a dormant condition, though the side branches made fair growth in the succeeding season; however, it essayed to make a start, and eventually produced a leader about 9 inches long, which, I regret to record, has again been subjected to mishap, by a mischievous squirrel having recently nipped off about 2 inches of its top, apparently for the purpose of more easily picking out the terminal buds. These depredators have also been very busy during the past winter amongst the cones on some of our Cedars of Lebanon and *Picea Finlaysoni*.—WM. GARDINER, *The Gardens, Eaton Park, Stratford-on-Avon.*

### MANURING POTATOES WITH HOPS.

AMONG the papers which have appeared in your Journal respecting the culture of the Potato, I have never met with one in which its writer grew the Potato in the same way as my father when I was a boy at home, or, I might say, used the same material as manure. The Potatoes were grown for market, and were always very early, good, and clean. As a manure in the drills, he always used rather fresh spent hops from the brewers' in liberal quantities, or leaf mould, but the former were his favourite manure. The Potatoes to which the hops were applied were always ready a week or ten days sooner than those in the leaf mould. I have grown Potatoes in pots and in frames, using hops, and with an equally good result. If any other correspondent has tried this experiment I hope he will state his experience.

I have used hops as a plunging material, and like them very much if they are not too fresh. I lived some time ago at the place of a gentleman who was the proprietor of a large brewery; the brewhouse was only a quarter of a mile from the garden, but no tan was to be had near, so the pit in the vinery was filled with one-fourth horse droppings and three-fourths leaves, with a layer of hops on the top for plunging, and I preferred them to ashes. I cannot obtain hops now, but this may interest those who can.—T. M.

### FRUITING OF *ULMUS CAMPESTRIS*.

I OBSERVE that a controversy is going on in your columns with regard to whether this Elm perfects its seeds in Britain or not. Having paid particular attention to this question for many years, I may remark that I have never succeeded in all the attempts I have made in obtaining plants from the seeds of this Elm; nor have I any reliable information as to others doing so. In some seasons the trees flower profusely, notably in 1864 and 1865, and as the springs of those years were favourable for ripening the seeds, I expected to have found some that would vegetate, but all that I tried were barren. Many years ago, when I was assisting the late John London, he was most anxious to ascertain the facts as to this point, and numerous inquiries were set on foot for the purpose, and I believe that the only instance that was established at that time was that Mr. Masters, of Canterbury, had succeeded in raising young plants of the true English Elm, but this is all the evidence, if I remember right, that was then collected, or that I can offer within my own knowledge. My own opinion must therefore be, that with the rarest exceptions, *Ulmus campestris* does not perfect its seeds in Britain; but as probably a wider discussion on the subject—one very interesting to those who admire the tree (and who does not?)—may elicit evidence to the contrary, and this would be worth knowing, I trouble you with my own observations on the subject.—JOHN SPENCER, *Buck Hill, Wills.*

I do not know "Science Gossip," and consequently am ignorant of the discussion which has taken place in its pages about the fruiting of the English Elm; but if the questions are simply as Mr. Britten states them at page 166 of the Journal, there is no difficulty about the matter whatever. We know that certain forms of the English Elm do in certain seasons produce fertile fruit. In these seasons the fruit re-



Of Tulips there was but a small show. For twelve pots of six kinds Messrs. Cutbush took the prize, and in the amateurs' class, for the same number of pots of four kinds, Mr. Steel, of Hammersmith, was first, also taking Messrs. Cutbush's prize for twelve pots of distinct kinds, while a second prize was awarded to Mr. Weir, Vermillion Brilliant, Van der Neer, Proserpine, Tournesol, Roi Pepin, Chrysolora, Keizerskroon, and White Pottebakker were the best. Jagt van Rotterdam is also a pretty kind.

Of Crocuses, Messrs. Cutbush sent a numerous collection in good bloom, taking the first prize in the nurserymen's class; and in that for amateurs Mr. Steel was first for twelve pots in excellent bloom. For a group of twelve miscellaneous plants in flower, Mr. Wilkie, gardener, Oak Lodge, Kensington, was first with *Dendrobium nobile*, in good bloom, *Phajus grandifolius*, *Hotela japonica*, *Camelias*, *Azaleas*, *Richardia ethiopica*, &c. A third prize was given to Mr. Ware, Hale Farm Nurseries, Tottenham, for a pretty collection, containing the beautiful blue *Scilla sibirica*, *Scilla bifida*, and its white variety, *Hepatica triloba coccinea*, a charming plant, *Dielstra speciosa*, and other plants. Mr. Ware also sent a basket of varieties of *Cyclamen* Comm.

Among miscellaneous subjects, Messrs. E. G. Henderson & Son, St. John's Wood, exhibited a collection of *Cyclamen*, which was awarded a special certificate. In this there were several very beautiful varieties. Mr. Forsyth, of 120, Mount Street, Grosvenor Square, and Stoke Newington, sent three charming bouquets; Mr. Turner, of Slough, *Primula denticulata*, and a basket of Mrs. Headly *Tricolor Pelargonium*, with the leaves very bright and beautiful in colour. Mr. F. Perkins, of Leamington, had a special certificate for twelve blooms of Prince of Orange Picotee, yellow ground, crimson edge.

From Mr. Williams, of Holloway, came a fine group of plants consisting of Ferns, *Dracaena*, *Caladium* Lowii, hybrid *Solanum* in fruit, and *Orchids*. Among the last-named were *Cypripedium* Lowii, *Coleogyne ocellata*, *Odontoglossum* Bosii, and several varieties of *Lycaste*. For this collection an extra prize was given: Messrs. Rollison & Sons, of Tooting, received a similar award for an excellent group of *Orchids*, consisting of *Odontoglossum Alexandrie* with large beautifully-coloured flowers, *Vandas*, *Dendrobium pulchellum* and *nobile*, *Cypripedium*, &c. Together with these were *Genetia fuscescens*, *Dichorisandra mosaica*, and other plants. From Messrs. Veitch came also a fine group, chiefly of *Orchids*. Among these were *Odontoglossum Alexandrie*, with large and beautiful spikes of flowers, *Odontoglossum triamphans*, *Dendrobium Farmeri*, *Dendrobium nobile*, *Phajus*, a high-coloured variety; the very *Hippeastrum pardalinum*, *Cattleyas*, and *Laches*. For this collection a special certificate was awarded. Mr. Denning, gardener to Lord Londesborough, Grimsdon Park, had also a special certificate for a collection of *Orchids*, containing fine specimens of *Vanda suavis*, *tricolor*, and *gigantea*, *Dendrobium nobile*, *D. macrophyllum giganteum*, and *D. Devonianum*, *Lycastes*, *Odontoglossum triamphans*, *Pilumnus fragrans*, the pretty purple and white *Leptotes bicolor*, *Cypripedium* Lowii, and other species. Mr. Burnett, gardener to W. Terry, Esq., of Peterborough House, Fulham, had a special certificate for a fine specimen of *Phalaenopsis Schilleriana*, with two noble branching racemes. He also had a fine example of *Odontoglossum Bosii*, which was sent to Messrs. Ashburnham Park Nursery, likewise received a special certificate for a collection of handsome Palms for table decoration, containing *Chamaedorea elegans*, *Areca aurea*, *Livistonia rotundifolia*, *Areca Verschaffelti*, *Damodaropsis plumosa*, *Geonoma Verschaffelti*, and other effective species. Mr. A. E. Barnaart, of Vogelzang, Haarlem, and Gebroeders Eldering, of Overveen, Haarlem, each sent large collections of Tulips, and in excellent condition, notwithstanding their long journey. Those from the former were in deep narrow pots; upwards of 7 inches deep, and about 3 inches in diameter. These pots, though not ornamental, are well adapted for growing Tulips, as they afford a good depth of soil for the roots. Special certificates were given to both exhibitors.

Much fruit could not be expected at this time of year, but prizes were offered for three dishes of Dessert Apples, and for three dishes of Kitchen Apples, and very good specimens of both were exhibited by several competitors. For Dessert Apples Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was first with Scarlet Nonpareil, Sturmer Pippin, and Pimston Russet. Mr. Earley, gardener to F. Pryor, Esq., Digsweil, Welwyn, was second. Mr. Cox, Redleaf; Mr. Garland, of Kiltorcan Gardens; Mr. Saul, of Stourton, and Mr. Gardiner, Edginton Park, also sent good dishes, among which were Blenheim Pippin, Adams Pearmain, Ribston Pippin, and Golden Knob, in excellent condition. For Kitchen Apples the first prize was taken by Mr. Gardiner with Reinette du Canada, Yorkshire Greening, and a kind not named. The second prize went to Mr. Ross for Northern Greening, Lewis's Incomparable, and Dumelow's Seedling. The Apples in both collections were very fine. Mr. Saul; Mr. Miles, Wycombe Abbey; Mr. Garland, Mr. Parsons, and Mr. Earley, also sent excellent dishes.

In addition, Mr. Sage, Ashridge Gardens, had a fine box of Strawberries. Mr. Rendle exhibited various forms of his plant protectors, together with some Lettices grown in them by Mr. W. Ingram, at Belvoir Castle.

The display of new Hyacinths was limited to two collections, one from Messrs. Cutbush, who obtained first prize, his included Lord Melville, a very dark bluish purple in the style of *Mimosa*, but with a

white eye, which throws up the colour well—it will doubtless be a fine spike by-and-by; Safrano, a light primrose, but not very remarkable in colour; Charles Dickens, a pale flesh, with a deeper line of pink down the centre of each petal; La Franchise, a very large-bellied French white, the truss as shown was too short; Mr. Gladstone, a very dark purple, but not superior to others that we possess; Regina Victoria, a peculiar-coloured flower in the way of Unique, but much deeper in colour and a much more effective flower. Besides these he had Forest Noir, a dark blue-purple in which a red stripe becomes prominent as it increases in age; and Hamilton, a dark blue with purple stripe. The second prize was sent by Mr. Charles Turner, obtained second prize, and included Comestor, light primrose; Josephine, somewhat in the way of a good Solfaterra; Prince de Talleyrand, porcelain blue; Seelding B, pink with deep stripe; Seelding No. 13, light blue; and Seelding No. 38, light flesh, with a deeper pink stripe.

Messrs. Veitch & Sons had a nice collection of Roses in pots, exceedingly well done, but wanting a few more Teas to lighten them. It included Céline Forestier, Duke of Wellington, Anna Alexieff, Fisher Holmes, Camille Bernardin, not sufficiently in bloom; Paul Verdier, Maréchal Vaillant, Jules Margottin, Rev. H. Dombain, in poor condition; Victor Verdier, John Hopper, Mrs. G. Paul, Pierre Solitaire, Général Jacqueminot, Mrs. Anne Derris, Duke of Waltham, Camille de Rohan, very fine, Madame Marie Cloude—one bloom of this was the finest I have yet seen of this; and Mlle. Bonnaire.—D. D.

FRUIT COMMITTEE.—G. F. Wilson, Esq., in the chair. Mr. Carr, gardener to P. L. Hinds, Esq., of Byfleet Lodge, Surrey, sent a dish of very handsome fruit of *Eugenia Jambois*, or Rose Apple, perfectly ripe, and of delicious flavour. A special certificate was awarded, accompanied with high commendation by the Committee. Mr. Carr also sent two large bunches of Bananas, to which a special certificate was also awarded. Mr. Moffatt, The Gardens, Hissip Hall, sent fruit of what was supposed to be a new Apple, but which proved to be Martin Nonpareil; and Mr. Gardiner, of Edginton Park, sent an Apple to be named, which was Golden Noble. Mr. F. Foxon, of the Brompton Road, sent a dish of Dumelow's Seedling. Mr. Charles Allen, gardener to J. B. Clegg, Esq., Wittington Hall, sent a bunch of Grapes to be named, which was Black Morocco. Messrs. Cutbush and Son, of Highbury, sent two dishes of Nancumb Park Onion, to show that this variety is not identical with the White Spanish. Mr. T. Bray, gardener to A. Sanford, Esq., Nyncehead Court, sent three dishes of Asparagus, one of Mushrooms, one of Sea kale, and two of Rhubarb. A special certificate was awarded to the Asparagus, which was excellent.

Mr. Thomson, of Dulkeith, sent two bunches of White Lady Downe's Grape, one from a Vine on its own roots, and the other from a Vine grafted on the Black Lady Downe's. There was also a bunch of the Black variety to compare with the others. The bunch of White Lady Downe's on its own roots was larger than those from the grafted Vine, and the berries were also larger, but the flavour was not so good, that of the other being better. The berries of both bunches had begun to shrivel and become brown, and the Committee expressed some disappointment that they were not in better condition.

FLORAL COMMITTEE.—Most of the subjects submitted to the Floral Committee were placed in the Council Room, an arrangement by which many not aware of the fact must have missed them altogether. There was, however, a large number of novelties on this occasion, though the majority of them were of great merit.

Messrs. Veitch had a first-class certificate for *Rhododendron Multiflorum*, a fine white-flowered hybrid, and so profuse in its blooming that it formed a mass of flowers. The same firm likewise sent *Vanda cereulea*, which they exhibited at the February meeting, and which, being in better bloom, received a first-class certificate. Messrs. Rollison, of Tooting, had a first-class certificate for *Dracaena Guifoyei*, a handsome kind with cream and rose variegation. Mr. Williams, of Holloway, also received a first-class certificate for a *Solanum* called compactum, answering to its name in habit, and bearing an abundance of fruit. A similar award was made to him for *Peristrophe angustifolia aureo-variegata*, a native of the mountains of Java, having leaves of a sad green colour, handsomely and very largely variegated with rich yellow.

From Messrs. Rollison came also *Eparis hincinthisiflora carinata* bearing a profusion of pink flowers, to which a first-class certificate was given.

Mr. Wilson, gardener to W. Marshall, Esq., Enfield, sent magnificent examples of *Odontoglossum Alexandrie*, for which he had a special certificate, and for one of which, spotted with brown, a first-class certificate was given. A similar award was made to *Odontoglossum himmii* from the same exhibitor; this was stated to be probably a male; at any rate it is a handsome kind, much of the character of *O. Alexandrie*, though not so striking as the latter now is. Mr. Needler, gardener to the Comte de Paris, York House, Twickenham, received a first-class certificate for a box of an *Ophrys*, species not determined, but found by the Comte de Paris in the Pyrenees. A first-class certificate was also given to Mr. Perkins, nurseryman, Leamington, for *Echeveria agavoides*. Mr. Wilcox, gardener to G. Cooper, Esq., Southend, had a special certificate for a specimen of *Odontoglossum gloriosum*.

Among other subjects submitted to the Committee was a seedling

Fern, supposed to be a hybrid between *Lomaria gibba* and *L. brasi-liensis*; this came from Mr. Douglas, the clerical gardener at Loxford Hall. Mr. Ware of Tottenham sent a basket of a new forcing Pink, *Mrs. Pettifer*; and Mr. Dean, Old Shirley, Southampton, a variegated Cabbage and various seedling Chinese Primulas; Messrs. Kollisson, Welfia regia, a handsome Palm, and *Phanocoma prolifera gracilis*, a variety of very slender pendulous habit, pretty enough, but probably not desirable as a flowering plant; and M. Paillet, of Paris, exhibited through Messrs. Veitch cat specimens of *Laurea latifolia* with leaves of immense size.

Apple's and Drecher's fumigators were exhibited; also Has-well's syringe, which, by turning a tap sent forth the water either through the rose or nozzle as desired, but it is heavy, and in the opinion of most practical men not an improvement on the best syringes now in use.

Several other certificates were granted, which will be found recorded in a previous report.

GENERAL MEETING.—W. Wilson Saunders, Esq., F.R.S., in the chair. After the Committee awards had been reported, and seventeen new Fellows elected, the Rev. M. J. Berkeley called attention to some curious monstrosities among which were a *Primula* with the calyx so increased in size as to have become foliaceous; an *Odentoglossum* with the petals reduced to four, and the lip absent; *Dendrobium chrysotoxum* with the petals likewise reduced to four, the lip absent, and the column almost abortive. This was not uncommon for a single flower, but it was uncommon for all the flowers on a branch, as in this case, to be so. Mr. Berkeley produced a *Cypripedium* producing two flowers on the same stalk, and several other curious instances. From Hafodunos, in North Wales, Mr. Sandbach had sent *Pina Allertiana* in fruit; it was believed to be a new form, commonly fruited in this country, and it was all the more singular that it should have done so at Hafodunos, as that was so bleak and cold a place that even Apples would not bear except in an orchard house.

After referring to the Ophrys, from the gardener to the Comte de Paris, as being probably, with perhaps one exception, all of the same species, Mr. Berkeley passed on to the danger of using the refuse of faggot heaps in compost. The first person who called his attention to the danger of this was the late Mr. Henderson, Lord Fitzwilliam's gardener, of whose attainments he spoke in the highest terms. In planting Fir and Larch it was impossible to get a healthy set of trees unless some years were allowed to elapse before the ground was replanted; and at Kew, where two Decidars had been planted, the one flourished, the other did not, and it was found that the latter had been planted where an old Cherry had been cut down. On the Decidar being carefully removed, and every portion of the Cherry taken away, the Decidar succeeded. The idea that fungi never grow on healthy tissues had been exploded. Let anyone try the experiment of rubbing grains of Wheat with the spores of *rust*; let him sow these, and sow, too, grains not so treated, separately, and it would be found that the former would be affected, the others not.

The Chairman confirmed Mr. Berkeley's remarks, and considered them very important to cultivators.

Mr. Berkeley then read a letter stating the good results which had followed the application of methylated spirits for the destruction of insects, and recommended a mixture of tar and grease, such as that used for horses' hoofs, as very efficient for the same purpose. Gas water, too, was an excellent remedy.

The Chairman said he had long been in the custom of using spirit, methylated and not methylated, and found it a most effectual cure.

MR. WILLIAM PAUL'S SHOW OF SPRING-FLOWERING PLANTS.—We have only time and space for a brief notice of this excellent Show, held in the north-western conservatory arcade at the Royal Horticultural Society's Gardens at South Kensington; but here it is too late, for it only opened yesterday, and will close on the 23rd inst. We can heartily commend it as well worthy of a visit. The *Hyacinths*, which form its main feature, are well worthy of Mr. W. Paul's reputation; and *Roses*, *Camellias*, *Ferns*, *Crocuses*, *Cyclamens*, fine-foiled *Pelargoniums*, Chinese *Primulas*, *Disystras*, and plants too numerous to mention at present, form attractive groups on each side of the passage, the whole, we need hardly say, arranged with excellent taste and effect. The *Hyacinths* alone deserve a special notice, but we must content ourselves by here mentioning *La Grandesse*, the finest of the whites, *Snowball*, *Czar Peter*, *De Candolle*, *General Havelock*, *Argus*, and the finest of it we have seen, *Charles Dickens*, *Baron von Tuyl*, and to these we might add many more equally good.

MESSRS. CUTBUSH'S SHOW OF SPRING-FLOWERING PLANTS.—This year, again, Messrs. Cutbush are early in the field at the Crystal Palace with a show of these plants, which opened on Saturday last, and is to close on the 26th inst. A stage 135 feet long is occupied on one side by *Azaleas*, *Epacris*, *Camellias*, *Cinchonias*, Chinese *Primulas*, *Cyclamens*, *Deutzias*, *Nar-*

*cissuses*, *Richardia* *ethiopia*, and a variety of other plants in flower, with several kinds of Ferns. On the other side are the *Hyacinths* and *Tulips* filling a similar length of stage. At the time of our visit the finest specimens of *Hyacinths* were held in reserve for Kensington, but the following were well represented—viz., double Duke of Wellington, Cavaignac, Howard, Florence, Nightingale, Macaulay, Von Schiller, Solferino, Haydn, Mrs. James Cutbush, Grandeur à Merville, and Charles Dickens, besides many others. The *Tulips*, also, were very bright, and we noticed a number of pots of the pretty double red *Hepatica*, one of a class of plants now too seldom seen.

## PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

ERYTHROCHITON HYPOPHYLLANTHUS (Linden's Erythrochiton). *Nat. ord.*, Rutaceæ. *Limn.*, *Pentandra Monogynia*.—Native of Oceana, New Granada, at about 2500 feet above the sea's level. Flowers white, and mostly produced from the midrib at the back of the leaf. (*Bot. Mag.*, t. 5824.)

DENDROBIUM LASIOGLOSSUM (Hairy-lipped Dendrobium). *Nat. ord.*, *Orchidaceæ*. *Limn.*, *Gynandria Monandria*.—Native of Birmah forests, introduced by Messrs. Veitch. Flower slightly red-streaked, and a yellow tuft of hairs in the disc. (*Ibid.*, t. 5852.)

PARANEPELUS UNIFLORUS (Single-flowered Paranepehus). See page 46, of the present volume of this Journal. (*Ibid.*, t. 5826.)

LINARIA TRISTIS (Sombre-flowered Toad Flax). *Nat. ord.*, *Scrophulariaceæ*. *Limn.*, *Didynamia Angiosperma*.—"A charming little hardy plant," native of the Rock of Gibraltar. Flowers dull yellow and purple. (*Ibid.*, t. 5827.)

GEOTIPIA MARGINATA (Red-nerved Evening Primrose). *Nat. ord.*, *Onagraceæ*. *Limn.*, *Ocandra Monogynia*.—"A magnificent hardy Evening Primrose." Native of the Upper Californian Rocky Mountains. Flowers white, pale pink whilst in bud. (*Ibid.*, t. 5828.)

FAIRY APPLE.—"Notwithstanding the efforts which the late Mr. Thomas Andrew Knight made to cross existing varieties of the cultivated Apple with the Siberian Crab, they all failed to produce a result which has been of any real benefit. Mr. Knight's object in thus crossing these individuals was, as he states, 'to obtain such fruits as vegetate very early in spring by introducing the farina of the Siberian Crab into the blossom of a rich and early Apple; and by transferring in the same manner the farina of the Apple to the blossom of the Siberian Crab.' At the time Mr. Knight wrote this, the tree so produced had not yet borne fruit, but he observes, 'the leaf and habit of many of the plants that I have thus obtained possess much of the character of the Apple, whilst they vegetate as early in the spring as the Apple of Siberia, and appear to possess an equal power of bearing cold.' But what was the result of these carefully performed experiments? From this crossing we got the Siberian Bitter-Sweet, which, Mr. Knight himself says, 'is wholly worthless, except for the press,' that is, for cider-making. Then the Siberian Harvey has a juice so 'intensely sweet,' that it, too, can only be used, mixed with other Apples, for cider. Both of these were raised from the fruit of the Siberian Crab, fertilised with the Golden Harvey, one of our best dessert Apples. Another called Foxley was also raised from the Siberian Crab, but the male parent was the famed Golden Pippin. Yet the Foxley is a worthless little Apple, not so large as some Gooseberries, and fit only for cider.

"It is interesting to watch these struggles between philosophy and nature. Philosophy says, 'I will,' and Nature replies, 'You won't.' But when left to herself, Nature fashions an object without the philosopher's aid, excelling in merit all that he had dreamed of. Here we have such an instance in the little Fairy Apple, of which our illustration is a faithful representation. This, too, was raised from the fruit of the Siberian Crab, but without any human aid. What is its parentage and how it was produced no one knows; but there it is, a hapazard founding, destined and worthy to take its place among the worthiest of its kind.

"Whether for its beauty or its excellence as a dessert fruit, the Fairy Apple cannot fail to become popular and valuable. In colour, size, and form it rivals the *Pomme d'Api* or *Lady Apple*, so much vaunted, and which makes the fruiterer's windows and our deserts gay during the dreary months of winter. For this purpose, the Fairy will command the attention of all growers of dessert fruit in large establishments, and for commercial purposes; for not only does it commend itself by its great beauty, but its flavour is similar and not inferior to

that of the old Golden Pippin, its flesh being of a fine deep yellow, with a rich and briskly-flavoured juice.

"The fruit is produced in clusters of from three to five, much in the same way as clusters of Cherries. They are  $\frac{1}{2}$  inch wide, and about  $\frac{1}{4}$  inch high, rather flattened at both ends, consequently inclining to the oblate form, and very even and regular in the outline. The skin is smooth and shining, covered with bright lively crimson, shaded with streaks of a deeper tinge, and on the unexposed side it is lemon-yellow. The eye is closed, set prominently, almost level with the surface, and surrounded with plaits; stalk sometimes less than  $\frac{1}{4}$  inch long, and frequently straight, slender, and as much as an inch or more, inserted in a small, shallow cavity, which is russety. Flesh of a fine deep yellow, firm, crisp, very juicy, with a rich brick flavour, and fine delicate aroma when eaten with the skin on.

"The fruit comes into use in December, and lasts till well on in the season. It is now (February) in perfection, and has the appearance as if it would last for some weeks on into April.

"This desirable acquisition was raised by Mr. Jennings in his nursery at Shipston-on-Stour, from seed of the Scarlet Siberian Crab or Cherry Apple. The seed was sown with no intention of raising new varieties of fruit, but for stocks on which to graft the ordinary varieties of Apples. One of these showing signs of fruit, Mr. Jennings grafted it upon a free Apple stock, and from one of the trees so produced the fruit was obtained.

"The parent tree from which the seed was taken is growing in an orchard consisting of such varieties as Ribston Pippin, Wyken Pippin, Blenheim Pippin, Margil, Hanwell Souring, and Pearmain. That which is in closest proximity to it is Margil, and it is not improbable that this was the male parent. The tree is of moderate vigour, with an erect habit of growth, and is hardy and prolific. The young wood is moderately stout, of a dull purple colour; and the leaves downy, elliptical ovate, evenly serrated, with a stalk half an inch long.

"Another and not an unimportant recommendation of the Fairy Apple is that it makes a delicious preserve.—R. HOOE."  
—(*Florist and Pomologist*, 3rd s., iii. 49.)

### GOLDEN FEATHER PYRETHRUM.

MUCH as this plant is lauded for its usefulness, I do not remember to have seen the best mode of "using it" throughout the season, as, if you plant out in May cuttings—say from 6 to 9 inches apart, from the repeated pinching to keep the flowers down, they will, ere the middle of July, have grown together and lost the beautiful golden Fern-like appearance, so much enhanced by the background of soil or dark-coloured plants showing through the graceful foliage. All who desire to use it to perfection should endeavour to keep the plants in the state most favourable to this perfect display. As cutting and pinching fail so miserably, I say, Get two successions to replace your first lot (which should be strong plants from cuttings planted out in April, if you have grown them hardy, or in May), having a batch of autumn-sown seedlings coming on to take their place as soon as they go to seed and become weedy, and a batch of spring-sown seedlings to replace these when they shall have arrived at the same state. Thus you will retain that charming distinctness and beauty so attractive in this plant in its early growth, and so totally lost when it has grown together and the knife become necessary.—R. H. POYNTER, *Taunton*.

### THE FIG AND ITS CULTURE.—No. 3.

PRUNING the Fig should be performed as soon after the fall of the leaf as possible, in whatever situation the trees may be, whether in pots under glass or in the open air. When the trees are pruned at that season, the plant being at rest, the wounds are soon healed over and no injury is sustained; whilst, if the operation is delayed until late in spring, when the sap is again in motion, there is such a volume of sap and it is of that nature, that the shoots are apt to die after the knife: hence another of the reasons against the pruning of the Fig, which we are warned against in nearly all the writings on the subject. With trees under glass and in pots, where the wood is properly ripened, pruning may be practised with as great impunity as with any other tree. Branches of almost any age or size may be cut off at any part, and young shoots will be produced quite freely, as shown by fig. 10. The young shoots thus produced, if too numerous, should be reduced to the required number.

FORMATION OF THE TREE, OR TRAINING.—Having shown how

to prune the Fig tree already formed, with a view to the simple production of fruit, it is necessary to take into consideration the pruning with regard to the tree's formation, &c. In pruning a fruit tree the operation has to be considered on two distinct grounds, first, for the production of fruit simply; and secondly, for the production of that form or style which shall produce fruit to the greatest advantage. It is a simple matter to prune to a mere form, but to produce that form and prune, having the two ends in view, require the exercise of a little more knowledge and understanding.



Fig. 10.

*Form.*—All fruit trees which naturally assume a bush form should have their energies confined to a single stem, with the head of the plant, of whatsoever character, formed thereon, and they then prove the most fruitful. When a number of stems are allowed to spring from the root, all striving to outstrip one another, a huge unshapely and unfruitful bush is the result. Fig trees readily produce suckers in abundance, which, as they have a fine healthy appearance, are often allowed to remain. This is, however, a bad practice, as they produce no fruits, but crowd up and rob the parent stem. This confining of the plant to a single stem is of the utmost importance for the fruit-producing of nearly all our fruit trees, but especially so with the Fig, and must therefore be rigorously adhered to. Without exaggeration it may be stated that quite double the quantity of fruit will be produced from plants so grown as from those having a multiplicity of stems. In the warm parts of the south of England some of the Figs may be grown and fruited to advantage in the form of low bushes or open standards, which form, where it will answer, is perhaps the best that can be adopted, and in so far as pruning is concerned requires the least possible attention—nothing further than the thinning-out and occasional shortening of some of the branches.

*Trees on Walls.*—These succeed tolerably well throughout a great portion of this country, and the form which they most naturally assume, and which seems adapted for them, is something of the fan shape. The great difficulty to contend against here is over-luxuriance of growth, arising chiefly from the influences of soil and climate, but somewhat also under the control of the pruner. The pruner may guard against over-luxuriance, which means unfruitfulness, by, as already stated, having the plant with a clear stem above the ground, and by keeping the shoots on the tree thin and well exposed to the full influence of the direct rays of the sun. The leaves of the Fig being large, the shoots or branches should be kept at a sufficient distance apart to prevent the leaves of the one from interfering with those of the other—say about 8 or 10 inches; and as the pruning of the shoots in winter can only be practised at the ex-

pense of the fruits, little pruning will be required. The points of the young growing shoots may be pinched out in summer. Cut out the shoots altogether when they become too crowded, and lay the others in at full length, excepting where it is necessary to prune back to secure a fresh supply of young shoots from the lower part; and this must be strictly attended to, to prevent the trees from extending beyond bounds, and having the fruiting shoots only at quite the extremities, the centre and lower part altogether being bare and unfruitful.

*Trees under Glass.*—The best form for these when planted out where space can be afforded is the same as that recommended and generally adopted with trees on walls; and in respect to pruning much the same practice must be followed, a little more allowance being made for the improved position and better-ripened wood of those under glass. Another form is that of the bush or half-standard, but such trees when planted out are extremely apt to grow too luxuriantly, and in consequence become unfruitful. The shoots should be kept very thin, so as to obtain all the sun's influence possible to thoroughly ripen the wood, and in the summer the young growing shoots should be vigorously pinched, in order to check luxuriance and bring the tree into a stubby fruitful form of growth. In general, as to training, pruning, &c., the treatment will be the same as that about to be fully explained for trees in pots.—A. B. C.

### HYBRIDISING PELARGONIUMS.

ONE of the most important matters in connection with hybridising, as in almost all undertakings, is to hit upon some definite standard, so that the operator may have some decided object in view. By this course the operator will be far more likely to arrive at some satisfactory result than by merely trusting to the chance of getting something good. It is a common but delusive idea that two varieties, being distinct, will be sure, when crossed, to produce something different from either of the originals, though it is just a chance if one of the seedlings so produced will be better than the parents, or even equal to them. Presuming, therefore, that the hybridiser is desirous of obtaining some particular cross with the object of arriving at the result he has set before him, and has fixed upon the varieties which he intends using for the purpose, the next important matter is to select good healthy plants as parents on both sides, as without healthy parents you can never expect seedlings from them to be strong and of good constitution; even though they be the most beautifully marked and distinct in flower, they can but be counted second-rate.

Having, then, made choice of good healthy plants, all the flowers that are expanded upon the plants that are to be used as seed-bearing parents should be taken off, and the plants removed as far from others as possible, or if they can have the house to themselves so much the better; still, if care be used, this is not absolutely necessary. Watch the seed-bearing parents closely every day till the first flower opens, and immediately the petals are sufficiently expanded to admit of its being done without injury to the flowers, perform the first operation. The anthers, which are the male organs, appear as little knob-like portions, standing up prominently in the centre of the flower; these must be carefully taken out, without injury to the centre column or pistil. Always bear in mind that there are, in a perfect Pelargonium flower, also two of these anthers lower down the centre of the flower than the rest, which must also be carefully taken out. This can be done by a pair of sharp-pointed scissors, or a penknife.

Having satisfactorily accomplished this operation, watch carefully the progress of the female organ of the flower to its maturity, which in healthy flowers takes two or three days from the time the flower expands. Double flowers are an exception to this rule, for I find they take twice as long as the single to come to maturity. Last year I had sixteen seeds from *Gloire de Nancy* and *Triumph*.

As I am writing this principally for amateurs, I ought, perhaps, to explain here that the female in a Pelargonium is the stiff thread-like portion coming immediately from the centre of the flower (surrounded by the filaments bearing the anthers) and having the appearance, in its earliest stage when the flower first opens, of one single thread-like projection, but which, as it advances to maturity, divides into five distinct parts at the point, each division being the direct channel to a distinct seed-vessel at its base. Now, it is just this period of arriving at perfection in the female organ that is one of the most important matters in hybridising. The best time, in my opinion, and what I generally follow in practice, is to apply the pollen as soon as possible after

the division of the pistil into its distinct parts takes place, and before it has expanded to its full size. It is not only in its best state then for receiving the pollen, but there is less likelihood of its becoming impregnated with another than that intended. I may add that once impregnated with the one desired, all foreign pollen coming in contact therewith avails nothing.

In selecting flowers, choice should be made of the first eight flowers that I open on the truss, for, as a rule, they are the strongest and best. I make it a rule to cut all the others away.—JAMES J. CRAIG.—(*Toronto Globe*.)

### THE CHEMISTRY OF MANURES.

AN interesting discussion which took place in the columns of THE JOURNAL OF HORTICULTURE with regard to manure, and whether it lost any of its value by being spread upon the land, and subjected to the action of sun and air before its being ploughed in, led me to read up again the different authorities on the chemical value of manures, and to examine into the reasons which are adduced for considering nitrogen so important a part of farmyard manures as to make the whole relative value of a manure depend upon the quantity of nitrogen it contains; so much so that in the discussion I have alluded to, started, I believe, by Mr. Pearson, of Chilwell, the question turned upon whether there was a loss of nitrogen in the manure or not by the action of the sun and air. Now, I have come to the conclusion that nitrogenous manures as a rule are valuable not on account of the nitrogen they contain, but because all organic compounds which contain nitrogen are easily decomposed, and also because the two principal manures in which nitrogen is present—that is, ammonia and nitrate of soda, are also valuable as solvents for other organic and inorganic elements which are necessary to the life of plants.

Now, as I think, the discussion of this question may interest some of your readers, and as I wish to be set right when my arguments are wrong, I venture to bring forward the reasons why I believe a false and fictitious value has generally been placed upon nitrogen. The argument hinges in the first place upon this very important point, Can plants assimilate nitrogen directly from the air or not? Now, Liebig broadly asserts, "We have not the slightest reason for believing that the nitrogen of the atmosphere takes part in the processes of assimilation of plants and animals" (Liebig's "Organic Chemistry," page 70), and having made this broad statement, argues from it as an established fact. Professor Johnston modifies this assertion very much and says—"Though the leaves of trees and herbs are continually surrounded by nitrogen, yet the constitution of plants may be unfitted for absorbing it by their leaves. The nitrogen may not only require to be in a state of combination before it can enter into the circulation, but it may also be capable of gaining admission only by the roots," and afterwards arguing from the value of such manures as ammonia and nitrate of soda, guano, &c., which contain nitrogen, he thinks it proves that they are valuable chiefly because they supply the nitrogen to plants which they cannot get from the atmosphere. Professor Miller in his "Elements of Organic Chemistry," says, "It is generally supposed that all the nitrogen found in combination in plants has been obtained either from nitric acid, or from ammonia, or from some azotized compound present in the soil in the form of manure, and that plants have not the power of directly assimilating nitrogen from the atmosphere." He goes on, however to bring several facts which help strongly to question the truth of this theory.

Why I say the whole subject hinges upon the question, whether plants have power to absorb nitrogen directly from the atmosphere or not? is this, because, as it is well known, nitrogen forms nearly four-fifths of the air we breathe.

The average composition of the air by accurate analysis in every one hundred parts is—

Oxygen .....	20.61
Nitrogen .....	77.95
Carbonic Acid .....	0.64
Aqueous Vapour .....	1.19
Ammonia .....	traces
Sulphuric Acid .....	
Carburetted Hydrogen .....	100.00

Near towns, too, there are other gases to be found, as sulphuretted hydrogen, sulphurous acid, &c., owing to the quantity of smoke which escapes from factory and other chimneys. Now, as a plant is always living in an atmosphere of nitrogen, if it

were proved that the plant could absorb and assimilate it in an uncombined state from the air, it would at once determine the question of the value of nitrogen as an ingredient in manures, as it would be clearly unnecessary to add more.

Let us examine, then, the grounds on which it is stated that nitrogen cannot be taken into the plant directly from the air.

First, I would call attention to the fact, that nitrogen is the most inert of all substances. It is colourless, tasteless, inodorous, and chemically the most inactive of all elements. The most important purpose it fulfils, is to dilute oxygen; it acts, in fact, just the part that water does to alcohol, dilutes the stimulant, as a man takes water to his brandy. Alcohol in its pure state is a violent poison. If only the proportion of oxygen in the atmosphere were increased 4 or 5 per cent., it would act as too great a stimulant to the lungs, and we should die from combustion; so, too, though nitrogen is not directly poisonous, yet the life of neither plants nor animals could be supported in it. Put an animal under a bell-glass filled with nitrogen only, it perishes in a few minutes. It was from this cause that chemists gave it the name of Azote—a non-supporter of life.

Again, so little is nitrogen necessary for the well-being of a plant, that most of the principal vegetable substances, as starch, gum, and sugar, contain no nitrogen at all. Instance the following—C, being carbon; H, hydrogen; O, oxygen.

Cellulose. . . . .	C. 24	H. 21	O. 21	Mucilage . . . . .	C. 24	H. 20	O. 20
Starch. . . . .	C. 24	H. 20	O. 23	Cane Sugar. C. 24	H. 18	O. 18	
Dextrin. . . . .	C. 24	H. 20	O. 20	Grape Sugar. C. 24	H. 22	O. 22	

all of which, it may be observed, consist merely of carbon and water. But even in those vegetable substances in which it does exist, its proportion is very small as compared with that of any other of the elements. Take for instance the following analysis, according to Professor Johnstone, of Wheat, both grain and straw, hay, and Turnips.

	WHEAT.			
	Grain.	Straw.	HAY.	TURNIPS.
Carbon. . . . .	43.4	48.4	45.8	42.9
Hydrogen . . . . .	5.8	5.3	5.9	5.6
Oxygen . . . . .	43.4	38.95	38.7	34.9
Nitrogen . . . . .	2.5	.35	1.5	1.7
Ash . . . . .	2.4	7.9	9.9	7.6
	100	100	100	100

And this, too, it must be borne in mind, after the substances have been artificially dried. In the growing crops the proportion of nitrogen is much less, as the water in the above analysis which forms so great a bulk of all growing crops, has been artificially abstracted. So great is the bulk of water in some crops, that it forms 80 to 90 per cent. of the weight of Turnips; Potatoes from 60 to 80 per cent.; grass from 40 to 50 per cent. So that in the case of Turnips, nitrogen which only forms 1.7 per cent. of the dried root would form .24, or about one part in 400 of the growing root.

An examination of the foregoing analyses will prove that even where nitrogen does exist in plants, it bears a very small relative proportion either to carbon or oxygen, and as a rule plants contain nearly three times as much hydrogen as nitrogen, even in their dry state, that is artificially dried at a temperature of 212°, till all water is evaporated; and when compared to hydrogen in plants in their growing state, nitrogen bears a very small proportion indeed, as the sap of all plants is water containing certain ingredients in solution, and water contains equal parts of hydrogen and oxygen, consequently in all growing crops the quantity of hydrogen is much greater in proportion to the nitrogen than when the plant is dried.

We see, then, that nitrogen plays a very unimportant part in the economy of a plant, and it seems to me to be contrary to all the provisions of nature to place a plant in a medium necessary to its existence, and yet that the plant should not be able to assimilate from that medium what it requires. Yet that is the line of argument which those persons must take who say that, though the quantity of nitrogen in a plant is so small, yet, though it exists in an atmosphere containing 78 per cent. of it, it cannot take what it requires from it. And it is not true in any other case, for in no other instance are plants placed in a medium which is necessary for their existence without their having the power of assimilating it. Moreover, however much of any one substance may surround the plant, yet it will never take more of it than what it requires, as all plants have the power of selecting the ingredients which are necessary to their welfare. This is very remarkable in com-

paring the different mineral ingredients of the ashes of plants, one being rich in silicon where another is rich in potash or soda, and so on. So, too, though carbon is present as carbonic acid only in the proportion of one part in 2500, yet plants take as much or more weight of carbon from the air than oxygen, which is a fifth part of the atmosphere. So there is no proof that plants cannot take nitrogen from the air by saying that if they could there would be more nitrogen found in them. The only reason is that it is not necessary to their existence to have more.

One argument is that no elements are taken up from the air in an uncombined form. Let us see how far this holds good. There are only two elements presented to the plant from the air chemically uncombined, and these are oxygen and nitrogen, and it is a well-ascertained fact that plants absorb and assimilate the oxygen; so that out of the only two pure uncombined elements to be found in the air, actual experiments have proved that the plant does assimilate one of them, which certainly, to say the least, weakens the argument in the case of the other.

Let us see, then, what is the case with the other constituents of the air. Carbonic acid is one part of carbon combined with two parts of oxygen, and is generally represented by the formula  $\text{CO}_2$ . It is perfectly unnecessary for me to state what is so well-known a fact, that one of the principal sources of carbon to plants is what is absorbed by their leaves in the form of carbonic acid. Again, another ingredient in the air is aqueous vapour; this varies from day to day in quantity according to the hygrometrical condition of the atmosphere, but all gardeners know that plants are capable of absorbing this aqueous vapour by means of their leaves. Take, for instance, the case of a plant flagging in a house from hot sun; if water is thrown upon the floor and stages, and the air charged with aqueous vapour, the leaves will absorb it, and soon regain their original condition without any water being applied to the root. Ammonia, again, which is found in very small quantities in the atmosphere, can also be taken in as food for plants through their leaves. This has also been found by actual experiment, by increasing the quantity of ammonia by evaporating carbonate of ammonia or other ammoniacal salts in the air of a large glass receiver, and putting the plant into it. Out of five substances, therefore, presented to the plant in the air, four of them are known to be assimilated as food. Why not the fifth, which forms the greatest bulk of all in the atmosphere?

There is so small a quantity of nitrogen in plants, that any experiments to prove that plants absorb or do not absorb nitrogen from the air are attended with great difficulties, and many sources of error. For instance, all water is charged with air, and therefore nitrogen is presented to the roots of plants in the water they absorb; again, all soil that has had animal or vegetable manure decomposed in it contains nitrogen, and all rain water contains nitrogen in the form of ammonia; so that it would be very difficult, or almost impossible, to keep a plant growing so that it could obtain its nitrogen from the air alone. It is chiefly owing to these difficulties that accurate experiments have not been made.

Those who assert that nitrogen cannot be absorbed as food from the atmosphere say that the plant takes up all its nitrogen from ammonia which supplies the nitrogen in a combined form as  $\text{NH}_3$ , one part of nitrogen to three of hydrogen, or else by nitric acid. Now, all the compounds of nitrogen are exceedingly unstable—that is to say, whenever nitrogen enters into combination with other elements it has no powerful affinity for any element at all; nitric acid, or five parts of oxygen to one of nitrogen, being, perhaps, the most stable of any. It is this property of nitrogen which forms the explosive quality of most of its combinations, as in gunpowder, gun cotton, &c. It is this which makes nitro-glycerine so dangerous a compound; but, dangerous as nitro-glycerine is, there are other combinations of nitrogen more dangerous still. If, for instance, chlorine gas is placed in a glass receiver, and held over a solution of ammonia, oily-looking drops are seen to form on the surface of the liquid, and will fall to the bottom. This substance is chloride of nitrogen, and will explode even under water if it be only touched with anything in the least greasy, as a glass rod dipped in oil. Again, if iodine be dropped into a solution of carbonate of ammonia, a grey precipitate is formed; if this be collected by means of filtering it through blotting-paper, and dried, the powder is so powerfully explosive that merely shaking the paper or the slightest touch will explode it, and it can never be made, except in the smallest quantities for the sake of experiments.

Now, though ammonia,  $\text{NH}_3$ , is one of the most stable forms

of nitrogen, still it is constantly being decomposed, and separated into its two elements. Ammonia is very soluble in water, and is capable of being taken up into the sap, where the presence of ammonia can easily be traced, and this is, consequently, supposed to be the chief source of nitrogen as a food, because it was given to the plant in a combined instead of an uncombined form; but is there any proof that the nitrogen, as it is separated again from the ammonia, is in any different form to what it was before, and therefore more ready to enter into combination? I have mentioned the other two cases of chloride and iodide of nitrogen, because by means of these and other explosive compounds it is easy to obtain nitrogen immediately it is liberated from other combinations; but chemists have never yet been able to trace any difference in the nitrogen so liberated, and in no case is explosion by nitrogen formed by double decomposition—that is, by leaving its combination with one element to combine with another, but it is always liberated in the form of pure nitrogen, in the same state in which it was before it entered into combination. Oxygen is well known to have two forms, one of which is called ozone, or nascent oxygen—that is to say, when oxygen is liberated from one element it is more ready to enter into combination with another. No such property as this has ever been discovered in nitrogen, why, then, should the nitrogen, as it is liberated from the ammonia, be different from what it is in the air? or why should the plant be more able to assimilate the nitrogen as a food as it is separated from the hydrogen in the ammonia? Every time the plant breathes through its lungs in the leaves it takes in nitrogen as well as oxygen, and that, too, in conjunction with the hydrogen of the aqueous vapour, and in every drop of sap that the plant takes up in its pores and tissues nitrogen is also present. I do not deny that ammonia is one of the forms in which what little nitrogen is necessary to plants is assimilated as a food; but I cannot see what proof there is that it is the only substance which does supply the nitrogen, nor is it, as I will afterwards endeavour to prove, by any means the most valuable ingredient in ammonia, or, in other words, the value of ammonia as a manure is not due to the nitrogen it contains. This I will endeavour to show in another paper, in which I wish to point out what, in my opinion, is the real value of ammonia as a manure.

The other ingredient, from which it is generally allowed by agricultural chemists, that plants obtain their nitrogen, is nitric acid. Nitric acid,  $\text{NO}_3$ , is present in slight quantities in the air formed by the combination of one part of nitrogen to five parts of oxygen by means of electricity; it is also found in saltpetre (nitrate of potash), and is given to plants as a manure as nitrate of soda. Nitrate of soda is supposed to increase the bulk of the grain by giving nitrogen to the gluten in the grain of the Wheat; but it is worthy of notice, that its best effect as a top-dressing is to stiffen the straw, and though nitrogen is added in this way when nitrate of soda is used as a manure, yet the straw of Wheat only contains 34 per cent., or only one part in three hundred of nitrogen; but if we refer to the analysis of the straw of Wheat, it will be found there is 7.0 per cent. of ash. Now, this ash is the mineral or inorganic constituents of the straw, which are left after the straw is burnt, and out of this 7.0 per cent. is silica. Now, silica is one of the most insoluble ingredients that a plant has to take up, and nitrate of soda acts in one way as a manure by dissolving the silicon, and enabling the plant to assimilate it, and it is well worthy of notice, that though the Wheat plant is in this case manured with a substance containing nitrogen, yet the straw contains fifteen to twenty times as much silicon as nitrogen.

I will, however, leave the further discussion of the value of the nitrates as manures till another time, as I am afraid I may have sufficiently wearied your readers already, and will with your leave continue the discussion in another number of your Journal.—C. P. PEARCE.

THE VICTORIA REGIA.—This magnificent plant has thriven to an unprecedented degree during the past summer in the Botanic Gardens at Ghent. Several leaves have attained a diameter of 9 feet, and have supported a weight of 250 lbs., and one even the enormous weight of 500 lbs. Seven of the gigantic leaves completely covered the basin of 164 feet square, and they were obliged to be removed to make room for the young leaves which continued to develop in the centre. Every four or five days a fresh flower appeared, which lasted only two days, or rather two nights, opening in the morning of a perfectly

white colour, diffusing about 5 or 6 P.M. a very powerful odour of vanilla, closing the next morning at 8 or 9 A.M., opening the same day towards evening, this time of a beautiful carmine, and finally closing the next morning. The magnificent leaves last through the summer; the plant begins to dwindle in October, and dies towards December. About this time the seeds, which have been obtained by artificial fecundation, arrive at maturity. They are sown in January, and appear above the ground in about six weeks. Their infancy is very critical; but once past this period, the young plants grow with astonishing rapidity; the plant in the Ghent Botanic Gardens, unquestionably the finest that has ever been cultivated, arrived at its full development in five months.—(Nature.)

### SKELETONISING LEAVES AND FLOWERS.

THE seed vessels of the Winter Cherry, Henbane, and Poppy, require a fortnight or three weeks if the weather be hot. Leaves of *Ficus elastica* (Indianrubber Plant), and *Magnolia grandiflora*, require several months; leaves of the Tulip Tree, Poplar, and Maple, a fortnight; leaves of the Holly and Ivy two or three weeks. Ferns require a long time, and so do the leaves of Begonia's Broom, Butchers' Broom, the Orange, Lemon, and Camellia.

Great care must be taken in choosing the leaves, as the smallest speck spoils one. Many more should be placed in the water than are needed, as not more than one in twenty will be perfect. The time required depends on the weather. Beginners examine them too soon.

The leaves should be put into soft water in a sunny situation, taking care that they are covered with water. Evergreen leaves may be skeletonised at any time, but deciduous leaves not before the end of June or beginning of July. Seed vessels must be operated upon when nearly ripe. When quite ready for skeletonising put the leaves into boiling water to remove the offensive smell. Remove the scum from the water. Brush off the pulp with a rather hard brush. If the leaves are tender bump them gently, which removes the pulp without disturbing the nerves of the leaves. Pour clean water over them until quite clean; put them on blotting-paper to dry—a piece of glass is useful to brush them on. Tender leaves should be floated in water and caught on a card, as are fine Seaweeds. Bleach with chloride of lime, and then wash them thoroughly with clean water, otherwise they become yellow. It is better not to bleach them until required for setting up.

Thistles and Teazles look well when bleached, and aid much in arranging a group.

### NOTES AND GLEANINGS.

WE have good grounds for believing that the CHISWICK GARDEN will yet be preserved to the ROYAL HORTICULTURAL SOCIETY; at least, such a portion of it as will be sufficient for all the purposes of a complete experimental garden, and by which the Society will be enabled to preserve its usefulness unimpaired. We need hardly say that such an arrangement will be productive of great pleasure in the minds of all horticulturists.

— It is proposed to erect a memorial over the grave of Mr. SAMUEL BROOMER, late of the Inner Temple Gardens. Subscriptions may be sent to the Treasurer, Mr. C. Wells, Boulevard Street, Fleet Street, London, E.C.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

PREPARE fresh plantations of *Globe Artichokes*, if necessary, by deep trenching and high manuring, for if encouraged in this way they will, by judicious thinning, continue much longer in bearing. After planting out the winter *Cauliflowers* there generally remain a number of small plants; these, if pricked out in a cool and shady border in rich soil, will make a succession, and form the connecting link between the principal winter plants and the spring-sown ones. Keep up a succession of *Lettuces*, and let those raised in boxes in heat be pricked out in a warm situation highly manured. Silver-skinned *Onions* should now be sown for pickling; the poorest soil in the garden is the fittest; work it when dry, and throw it into high beds, the higher the better, and after sowing thickly tread it as hard as possible.

#### FRUIT GARDEN.

Finish all nailing of wall trees, and protect as much as pos-

sible. Tie down a good many of the weak and short-jointed branches of Pears and Plums on walls or dwarf espaliers. This will be found much better than the old and spurring-back method. In the meantime, cut off all over-luxuriant wood close to the stem. Destroy all insects before the trees bud. Clean off all scale, &c., using on trees liable to insects a wash composed chiefly of clay, water, and sulphur. Top-dress Hawthorn, Strawberries in beds, also other kinds where the ground is somewhat exhausted, as soon as the old leaves are removed and the plants thoroughly dressed.

#### FLOWER GARDEN.

The weather being favorable, and vegetation on the move, the mowing of lawns will have commenced in many places. Where high keeping is to be carried out, it is of the utmost importance to take every possible means in the spring to insure a permanent green sward throughout the summer. Lawns, or portion of them, having a hungry sandy soil, and liable to "burn," should have a slight dressing every spring: even common soil will benefit them, as it encourages the production of surface roots. A dressing of manure or clayey soil in a highly pulverised state would obviate the tendency to burn. A slight dressing of guano has an excellent effect in such cases, having considerable saline properties. Those who desire to have Moss and Provence Roses throughout the summer should now cut back portion for that purpose, merely pruning away the parts which have budded. Superfluous suckers of Roses, Lilacs, &c., may be removed and planted out for successional stock, and the old stools of Roses richly top-dressed. The pruning of Roses in general must forthwith be completed.

The late frosts have proved the necessity of attention to protection. Auriculas will require double mats over the frames whenever there is any indication of frost, for should the trusses of expanding flowers meet with a check, they will but rarely open satisfactorily. A moderate supply of soft water may now be given whenever necessary, and where there has been no opportunity of top-dressing the plants with rich compost, an application of guano water about every ten days will be found highly beneficial. Seeding Ranunculuses which are just out of the ground are extremely tender: the boxes or pans in which they are sown should be placed in frames, though plenty of air must be given as often as possible to prevent their becoming drawn. Carnations and Picotees will soon begin to spindly: these shoots should be removed if they have flower buds on them, and one of the strongest lateral shoots encouraged to take the lead. In procuring fresh varieties, do not forget the Rose Picotees, which are not only beautiful but extremely fashionable amongst florists. Fanny Iry (Wilson's), Princess Royal (Wilmer's), Mrs. Barnard (Barnard's), Ivanhoe (Cronche's), Correggio (Wilson's), and Queen Victoria (Green's), will be found good. The beds of Tulips may now be gone over carefully, breaking the surface soil with the hand, at the same time exposing to the full action of light and air any leaves which may have the canker. Attend to covering as occasion may require. Vacancies in beds of Pinks should immediately be filled up. Plants may be potted-off in large pots for blooming.

#### GREENHOUSE AND CONSERVATORY.

At no period of the year, perhaps, is caution in the use of fire heat more needed than in the month of March. March winds are proverbial, and March suns are at times intensely bright. Now, as these winds are by no means to be desired in hot-houses, the very best plan is to keep down fire heat to the lowest possible degree all the morning, and where forcing is going on to have a lively fire for a couple of hours in the afternoon—say from three o'clock until five. By these means the necessity of giving much air will be obviated, and the climate within will be maintained in a most wholesome state as regards moisture, &c. Frequent attention is necessary at this period in giving of air and gradually diminishing the amount of ventilation. A great reduction should be made soon after noon in forcing houses, and the whole of the air should be taken away as soon as it is considered safe to do so. Curvas shading will be in great requisition also. Conservatory plants to be retarded, Camellias making growth, and even the late Vines swelling their buds, will be benefited by a little shade during bright sunshine. Shading will now be of the utmost importance in the conservatory. Camellias growing should be so placed as to receive both more shade and more atmospheric moisture than the general inmates of this house. They are, in fact, far better in a small house by themselves, which should be kept up to 70° by day, and 60° by night, receiving much the same treatment as Orchids at this period. Large

specimens of Fuchsias should now receive very liberal shifts, in fact, with well-regulated potting and thorough drainage, they should be placed in their final pots or tubs at once. Now is a good time to sow imported or home-saved seeds of tropical plants. Half fill the pots with drainage, and then fill with loam and silver sand in equal parts. Water them thoroughly but slowly with a fine-rosed pot, and cover the surface with a good coat of sphagnum. They may be placed on a warm shelf in a shaded part of the greenhouse. Some of the growing Heaths may be shifted now, use abundance of drainage, and sandy heath soil full of fibre; thrust it in lumps round the ball, now and then forcing down pieces of stone or lumps of charcoal, and finally coat over the surface with some of the finest portions of the soil, which should have a liberal amount of sand. The ball must be moderately moist before shifting, for if thoroughly dry, no after-watering can bring it right. Pot Cape or other bulbs as soon as the foliage is becoming strong; use chiefly loam, leaf soil, and silver sand. Dress Pelargoniums, and stake them out; slip off all interior and ill-placed shoots, and make cuttings of them, they will flower well throughout the autumn. Lisianthus Russellianus should now have a liberal shift with much drainage, and should be placed in pans of water in a Cucumber frame, or other situation where there is a moist heat. Attend well to watering. Be shy, however, in watering newly-shifted things; do not water these heavily. Give them a little water frequently through a fine-rosed pot, until they become well rooted.

#### STOVE.

Growing Orchids will now require shading for a couple of hours during bright sunshine, for fear of too copious a perspiration, also in order to retard Dendrobiums in blossom; the latter, however, will do extremely well in a dry, warm parlour or drawing-room, only they will require a good watering at the root occasionally. A very moderate amount of atmospheric moisture will suffice for these plants when in flower. The growing specimens must at this period have a considerable increase in the quantity of moisture supplied.—W. KEANE.

## DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

CABBAGE stamps that afforded frequent nice gatherings of young sprouts all the winter, have mostly been removed to the rubbish-charring, or turning heap, and the ground they occupied thrown out into 4-foot beds and 4-foot ridges, the trench beds to come in ultimately for Celery, and the ridges were sown with one row of Peas along the centre. As at present we have no means of protecting these Peas, the seeds were all red-leaved before sowing. For an improvement, as we think, we just damped the Peas with strong soft-soap water, so as to make the lead adhere. Very little of the lead thrown on as powder, and stirred among the Peas with a stick, suffices to coat them nicely. Four pounds of lead would be sufficient to coat all sorts of seeds for the season in a large garden. An ounce would be quite sufficient for a quart or two of Peas. All seeds, as Cabbage, Lettuce, and Turnips, that we sowed last season were not touched at all by birds or mice whilst in a vegetating state, or even before germination commenced. It is rather singular, that without making a hole to reach the seed there is something in the way of instinct that tells there is danger. When Peas and other crops were well above ground we have suffered from pheasants, rats, and grass mice eating the crisp young shoots; but it is of importance to keep sparrows, green linets, and mice from the seeds whilst they remain beneath the ground, and this the red lead seems to do. We sowed some Peas in tiles this season, and neglected to lead them, and rats and mice have found them out. When we have put leaded and unleaded Peas side by side, the latter have been nibbled and the former never looked after. As stated above, it is singular that, when leaded, neither birds nor mice seem to care to make a hole to look for the seeds, whilst an unleaded row will have holes made from end to end in a night, and a good proportion of the seeds demolished.

One simple word more as to sowing Peas. We rather like the ground to be well stirred. In the ridges just referred to we dug over the 4-foot space, adding a little manure previously, where the ground is much exhausted with a heavy long-coulted Cabbage crop, before we added the soil that came from the trench beds. But though it is true that roots should be encouraged to go down, Peas, like Wheat, are rather averse to an open loose tilth; and therefore, when we draw out a wish drill with the hoe, we generally run our foot pretty

firmly along the bottom of the drill. This keeps the Peas on the same level, and they certainly hold all the more firmly from the resistance given to the free descent of the roots. In sowing on ridges, and even on the level, it is desirable to draw the drill wider and fully double the requisite depth, but only covering the Peas about 2 inches, leaving a little furrow or trench above them. When that is neatly beaten on the sides it is a great protection against slugs and snails, and rough ashes may be strewn along if needed; and in a dry season it is an easier matter to water the Peas, if that should be deemed necessary.

The weather is still so uncertain and cold, and the ground so cold, that nothing is gained in sowing much, unless where less or more protection can be given. Radishes on beds and banks need protection, and good early crops can be obtained by sowing now, and, if the ground is rather wet, covering with dry soil, using a little litter until the seed leaves appear, when they should have all the sun and air possible. Quick returns, however, will much depend on covering up early in cold weather, and not uncovering too early in the morning.

Where protection can be given, Turnips may be sown in the same way, but generally the middle of the month is early enough where neither glass nor light calico can be had as a covering. We use in these cold nights a little litter over our Cauliflowers under hand-lights, to bring them on more rapidly, giving them and early Potatoes plenty of air and full light in mild days.

We hear from so many quarters forebodings because so little can be done—"the ground is so wet, or is so cold, that the season will be lost." Not at all. Seed time, and harvest too, will come; but there can be no doubt that in such seasons as this, take the country as a whole, a week or a fortnight later than usual in sowing will tell the best in the end. In all seeds, the time of the greatest danger is just after germination has commenced. Then extra dryness, extra wet, or extra cold, may ruin the plant, even before it appears above the surface. The more quickly germination takes place, the more safe will the crop in general be, and to insure rapid growth it is worth while to wait until the soil is in a nicely pulverised state, and moderately heated.

We have turned and re-turned the ground we intend for Onions and Carrots, but we shall not sow just yet. We do not often suffer from the exercise of a little patience.

#### FRUIT GARDEN.

The frequent falls of snow and heavy rain have taken as much of the lime-washing off our fruit-tree bushes as to make many of the fruit buds again conspicuous. We question if we must not give them a little more. Before this washing, one or two bush Pear trees, beautifully set with fruit buds, and some nice Plums, suffered very severely; many of the fruit buds were picked out and eaten, many thrown down as if in sport, so far militating against the insect-in-the-bud theory, as, on closely examining with a microscope some scores of these buds thrown down, as well as the remains of those partly picked, we could not observe a trace of an insect, or the egg of an insect. We have a few dwarf Cherry trees beautifully studded with clusters of bloom buds, and though we did not see a bird at them, we found that a good many buds were going, but after the whitening not one has been touched, and we have seen no birds at them until to-day, when we noticed some house sparrows, hedge sparrows, green linnets, and tom-tits examining and trying the buds, from which the action of the weather had removed the whitewashing. When we go to other places we can see that the grower is allowed the results of his careful culture, as birds do but little damage. We can see fine trees any day left to themselves and untouched, whilst here they would soon, if left to themselves, be nothing better than faggots. Only the other year dwarf Plums bristling with fruit buds were next to destroyed, fruit buds, and wood buds too, being remorselessly picked out.

*Strawberries in Pots.*—Since we last referred to these we have not lost many more by mice, &c. Something depends on the position: when we could place these pots in the orchard house we seldom lost many, but their presence there kept other things out, and they were rather in the way when washing woodwork, glass, &c. In every other place we have put them we lost a lot of crowns every year.

We see sometimes much stress laid, that an orchard house, like every other house, should be kept to its one legitimate use, and such may be the case here and there, where the gardener can give a place for everything, and keep everything in its place, but nine gardeners out of ten, if not nineteen out of

twenty, are obliged to put every house to many purposes, and we have been glad to put our orchard house to many uses besides growing fruit trees, though making these the principal object.

*Orchard Houses.*—We are shutting-up one a little earlier, and that will help us soon with bedding plants, &c. The other we only shut up in cold nights, and leave it open whenever the weather is favourable, so as to make it as late as we can before the trees open their buds. Both houses have been watered where too dry, but the soil will not be much watered until the weather and the water are warmer. Bear in mind, that if the roots become very dry the buds, as they swell, will be apt to drop, and a very heavy watering under such circumstances will very likely produce the same result. It is best in such cases to moisten the earth by degrees.

One fruitful source of disappointment as respects small orchard houses (unheated glass cases), arises from keeping the trees too warm in winter and early in spring. Hence we always regret to hear or read of enthusiastic amateurs having their Peach trees in unheated houses in full bloom in February and the first days of March. We should like better if the trees were merely swelling their buds in the beginning of March, and were not in full bloom until the middle or end of the month. Let it be laid down, then, as a general rule, that the later the trees bloom in unheated houses the less will be the risk, the greater the likelihood of the success, and the smaller the chance of a combined appearance of checks and insects. In our own case, we do not keep our orchard houses so cool in winter as we should like owing to having other things in them, but had we only the fruit trees we would never shut the houses up entirely in winter, except during storms and severe frosts. As respects the latter, it will require to be severe indeed to hurt Peach trees in a cold house, where, from being shut up, the enclosed atmosphere is comparatively close and still—a very different affair from a full exposure to a north or east wind far below the freezing point. Although orchard houses, properly speaking, should have no artificial heat, yet when used for many purposes, a little heat is very desirable, but if that heat is merely trifling it will always be wise not to use it so as to forward the trees prematurely. Of course, much depends on the position. Keeping the trees back a little instead of forwarding them, might not be of so much consequence in Devonshire and Cornwall (where a fall of snow—at least, one that will lie a little, is something like an alarming wonder), as it would be in our midland and northern counties. One cause of failure, and a prominent one too, is keeping the trees too warm and carefully in winter and early in spring.

#### ORNAMENTAL DEPARTMENT.

As previously stated, we have been going on, but, owing to repairs, not so quickly as we wish, with potting, cutting-making, and pricking-out the earliest sown annuals. Fresh-arranged corridors and conservatory, taking Azaleas, Cinerarias, Wallflowers, Primroses, &c., into the former. We have been delayed in turfing owing to the weather, and also from having a chance presented to us of securing some very rough turf for making compost, from what formed a grass roadway between fields, but which was to be ploughed up. Taking off this, especially that on the ridges raised above the furrows left by the cart wheels, would be a benefit to others as well as to us. The soil, though good and fair for fibre, was well supplied with Couch roots, which, if not taken out and burned, might have spread over the adjacent fields. Even taken off only 1½ inch thick, and built neatly in a stack, it will be fine material for the best purposes in less than a twelvemonth. We previously stated that we generally build in stacks from 3 to 4 feet wide, and when some 4, 5, or more feet in height, we make a span-roof 3 or 4 feet higher, by gradually drawing it in until a single turf forms the apex. So treated, we can always have soil tolerably dry. The narrower the stack the sweeter and the more mellow it will be, without losing its fibre. We expect that from the air and dryness alone, all the Couch will be dead in a few months. The grass on the roadway is rough and long, and that will do something to let the air pass freely through the mass, so as to sweeten without decomposing the fibre.

To assist this still more, we might have used some rough faggots in layers in the stack; the only objection to the free use of these is to be found when we cut such a nice heap down with the spade. Instead of the faggots, we need two rows of round cylindrical tiles 2 inches in diameter, from end to end of the stack, placing these layers of tiles, as respects depth, 18 inches apart, so that we should have four or more double rows in the stack. These were placed end to end, but leaving

a little space between them, so that the air should pass freely through the mass. We happened to have these tiles beside us, and made cylindrical tiles of them, very cheap, and a few of them come in useful for many purposes. Of course, building such material in a regular stack requires more time and labour than throwing it into a rough heap, but then there are these more than countervailing advantages—the grass is sure to decay; the bulk will be aired, sweetened, and mellowed, without being greatly decomposed; without much shed room you may almost always command dry soil for potting and other purposes; and where room is scarce, you can thus pile up a large quantity in little space.—J. F.

## METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending March 15th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed.. 9	30.114	29.028	45	32	42	40	N.	.00
Thurs.. 10	30.005	29.094	50	28	43	40	N.	.00
Fri.. 11	29.672	29.658	50	32	43	40	N.W.	.00
Sat.. 12	29.617	29.599	41	29	42	41	W.	.00
Sun.. 13	29.854	29.691	41	29	41	40	N.	.00
Mon.. 14	30.007	29.865	46	36	40	39	S.W.	.00
Tues.. 15	29.938	29.746	48	35	41	38	S.	.10
Mean..	29.892	29.772	46.48	28.89	41.71	39.57	..	0.10

9.—Overcast; cloudy; densely overcast.

10.—Cloudy; densely overcast.

11.—Densely overcast throughout.

12.—Densely overcast; cloudy; overcast.

13.—Snow, densely overcast; fine; densely overcast.

14.—Sharp frost; cloudy but fine; clear and bright.

15.—Fine, overcast; very fine; clear at night.

## TRADE CATALOGUES RECEIVED.

James Dickson & Sons, 102, Eastgate Street, and Newton Nurseries, Chester.—*Catalogue of Farm Seeds.*F. & A. Dickson & Sons, 106, Eastgate Street, and Upton Nurseries, Chester.—*List of New and Select Farm Seeds.*

## TO CORRESPONDENTS.

Many complaints having reached us as to the difficulty and delay in procuring this Journal on the day of publication, we repeat a notice in the first column of our advertising pages, showing how its delivery can be promptly and punctually secured. Being published in time for transmission by the Thursday morning mails, THE JOURNAL OF HORTICULTURE should, with but few exceptions, be delivered on the same day in all parts of the country. If there is any delay, let our readers apply to the nearest railway book-stall, and by paying their subscriptions in advance their copies will be regularly supplied. If country booksellers cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.

BOOKS (A. G. F.).—We know of no book applicable to arboriculture on the banks of the River Plate.

COW URINE (J. H.).—Gypsum or green vitriol in the proportion of 7 lbs. to every ten gallons will fix the ammonia in the urine; but if it is poured on to the soil and not on the end of the stick, it will rot the ammonia. There is no special publication on the subject, but if you enclose four postage stamps with your direction, and order "Manures for the Many," you will have it sent post free. It contains something on the subject.

SEEDS (J. M.).—We cannot name plants from their seeds. You will see what is said to another correspondent about Camellias.

FORMOSA & HOLLY HEDGES UNDER TREES (O. Flood).—Though Holly grows well under trees, it will not form a good hedge in such a position if Quicks will not thrive. From now to May is a good time to plant Hollies, but this ought to be done before they begin to grow, and for young Hollies we consider the next six weeks, and from the middle of September to November the best time for planting. Plants about a yard high, with every alternate plant about 15 inches high, and bushy, will make a good hedge, and no cutting will be required except at the sides until they are as high as required, say 4 feet. Hollies like a good loamy soil, light rather than heavy, and the soil being free of stagnant water. A good dressing of well-rotted manure at planting and annually will encourage their growth, and copious supplies of water will be required if the summer should prove dry. The plants should be planted 1 foot apart.

CUTTING YEW HEDGES (A. B. C.).—If the hedges have been neglected, and require close cutting-in, this should be done early in April; but if they have been regularly cut, any irregularities of growth may be removed now, and the general cutting left until the growth is complete in the end of July or beginning of August, and then they should be cut so as to have a trim appearance. If much cutting-in is needed, it may be done to any extent in April, and a run over with the shears in July or August, so as to remove any irregular growth. Doing this will make all neat for the season.

CEMENTED WATER TANKS (Idem).—We do not know of anything that may be mixed with cement to deprive it of the lime it gives off, whereby

water is rendered hard and unpalatable. Good Portland cement, if allowed to become thoroughly dried and hard before the water is let in, does not cause either hardness or unpalatableness in the water.

ASPARAGUS SEED SOWING (Q. Q.).—We know nothing of the Asparagus you name beyond what is stated in the advertisements. We think it would be seed out of its season to sow it in the open ground in April. Of sowing in heat, pricking off, hardening off, and planting out we have no experience, but do not see why, with care, it should not answer.

CHINESE PRIMROSES IN A COLD FRAME (Idem).—These plants will not stand the winter in a cold frame. They will not endure frost, or, if frost could be kept from them, they are too impatient of the close and damp atmosphere to which they would be subjected in winter to do well in a cold frame. A light airy position in a greenhouse is necessary.

PLANTING UNDER THE SHADE OF A CHERRY TREE (J. Scott).—We should plant Berberis Darwinii.

NECTARINE SHEDDING ITS BLOSSOMS (J. C. W.).—We remain of the opinion we expressed last week. The tree, we think, does not ripen its young wood. The cause you must find out. It may be planted too deeply, the aspect may be bad, it may not have sufficient air, &c.

PRUNING ROSES—NEW VARIETIES (A Subscriber, Leamington).—The preference given to pruning Roses in March, rather than previously, is chiefly owing to the fear of frost injuring the dormant bud. Roses can be partly pruned previous to the winter, by thinning-out weak wood, which should be to be altogether removed in the case of Roses on the Manetti, removing any wood more than three years old wherever there is younger and more vigorous wood starting from the base. Standards, when used for garden decoration, require a rather different method of pruning than when required for cut blooms, and in order to produce a symmetrical head, some of the wood, which would otherwise produce the finest blooms, has to be sacrificed. On warm and dry soils, and where the climate can be depended upon, winter pruning will insure earlier blooming, but it is dangerous to give a general rule, as the results are ever a matter of judgment to judge as far as possible from the knowledge of his own locality; it is better, in general, to prune too late than too early. The following are the best recent additions to our Roses, introduced, mostly, since 1856. There are a few of them, as Miss Ingram, Edmund Morris, Henry Ledebour, and La Duchesse de Nemours, for the most part depended upon—*Hybrid Perpetual*: Abel Grand, Alfred Colomb, Antoine Ducher, Annie Wood, Clemence Reaux, Duke of Edinburgh, Edmond Rother, Elie Morel, Francis Treve, Henry Ledebour, Horace Verne, Louis Tonnay, La Duchesse de Nemours, La France, Madame la Baronne de Rothschild, Madame Creyten, Madlle Marie Raby, Marguerite Dombrai, Marguerite de St. Amad, Marie Bannmann, Miss Ingram, Monsieur Noman, Princess Mary of Cambridge, Pierre Notting, Reine de Malis, Thérèse, and Xavier O'Neil; *Tea*: Adolphe de Nemours, *Nevolette*: Margherite Nier, *Tea*: Adrienne Christophe, La Boute d'Or, Marie Sisley, Monsieur Furtado, and Reine du Portugal.

PRUNING MANETTI ROSE STOCKS (J. H. D.).—If your Manetti stocks are planted deeply, take them up carefully and shallow-plant them, and bud on the main stock as near to the roots as you can. Do not cut down the stocks, or cut the twigs. You may cut the twigs, but not when the bark of the stock will run. Six inches from stock to stock, and from 15 inches to 2 feet from row to row, are the proper distances for a plantation. The nearer the plants are together, the more likely is the plantation to succeed. The plants should be supported each by a stake, and less water than when they are far apart. Water your stocks well a day or two before budding, as the bark will part more freely. If your stocks are planted deeply you must, in case you do not replant them at a less depth, scrape away the earth, and bud as low as you can.—W. F. KADCLIFF.

CUCUMBER CULTURE (E. H. D.).—If you do not wish to have Cucumbers until June, or Melons in August or September, you may dispense with linings. The pit at present has open spaces at the back and front for linings to the centre bed or pit proper, and it can be filled with dung at the end of January, or early in February, and this will afford heat for the plants for three weeks, when the spaces must be filled with hot dung so as to maintain the proper temperature for the plants; if those linings be removed from time to time you can have Cucumbers in May, and Melons early in July. If we understand you aright we anticipate you can do the pips and the melons, and the Cucumbers, and the central bed, to have a result equal to that which you would have with the linings. If so, you are mistaken, for by confining the heat you obtain a slight increase of temperature no doubt at the commencement, but do not add to its continuance, as it will bring forward the plants in a month before so declined as to be fit for low Cucumbers and Melons, hence the necessity of linings to maintain the proper heat. The pits will answer with linings for growing Cucumbers, &c. from the beginning of April, the heat of the bed giving them a start, and after that dependance must be placed on the heat more than the best of the pits.

BOTTOM HEAT FOR A CUCUMBER PIT (A Young Gardener).—Of your two plans, we think the better is placing slabs across the pit, so as to form a chamber. This would answer, only we do not see how you are to have top heat, and with two pipes in the chamber you would have too great a bottom heat, and no top heat. We should therefore have openings in the slabs at 1 foot from the front and back, and in the middle, and the circular, about 24 inches in diameter, and over each aperture place a drain pipe on end. A pipe a foot long, with a 3-inch bore, will suit. On the slabs you may place bricks, or any kind of loose open material, for drainage, and dig it so high, and with the regular watering, will give you about 2 feet from it to the glass—namely, 10 inches for soil, and a space of 14 inches from the soil to the glass. Dung is wholly unnecessary, and to fill with dung would render the bottom heat from the pipes useless. By wood plugs to each of the pipes, you may regulate the top heat to a nicety.

BOWLING GREEN MAKING (J. H.).—The most common form is that of a square moderately extended; but some are made oblong, others circular, though, to suit the general plan or figure of the ground, they may be of any other form. The surface of the green should be perfectly level, not rising at all to the centre, and not rising at all to the centre, but level at the edges of the ground, so that it may be always preserved from stagnant moisture. The surface should be levelled in the most exact manner, and laid with the finest grass turf that can be procured from a close pasture, common, or down. The extent and proper levels are then set out with



able: alluding to the fragrant flowers. *Nat. ord.* Amrillidaceae. *Linn.* *Hexandra monogyna*. Store bulb. Offsets. Light long and point. Winter temperature, 50° to 63°; summer, 60° to 80°. *E. grandiflora* (large-flowered). 11. White. December. New Granada."

**DECLINING TO ENGAGE (Poor Gardener).**—It is a case of hardship to you, and if you wrote courteously to the lady she might make you some recompense. You have no right to refuse to be engaged by her. We never before heard of a Welsh under-gardener refusing to serve under an English head-gardener.

**OSBORN'S RED BEET (G. R.).**—You will see a note about it in our Journal to-day.

**BURNING CLOTH OF GOLD AND CLIMBING DEVONIENSIS ROSES (H. J. W.).**—They should be cut very little. Just take off the tops of the main shoots to good eye in front of the house. The lower shoots are very twist them a little like a snake. My Climbing Devonensis has made this last year two shoots 15 feet long. I have done as stated above. If the Cloth of Gold and Devonensis have all had wood, I should in that case cut them back nearly to the stock, then let them grow up again. If you cut back yearly strong vigorous shoots to the stock you will never have any flowers.—W. F. RADCLIFFE."

**BOXES FOR CLIMBERS IN GREENHOUSE (John Anderson).**—We do not think you would find cast-iron answer, and bricks, as you anticipate, would be too clumsy. We advise you to place bricks on-edge on the due as headers, to the full width of the flue, with half a brick between each, so that you will have 4-inch space between each course of heading bricks on edge, which will allow the heat to pass into the house without rendering the bricks too hot. Instead of having boxes part of the length of the house we would have the boxes in one piece, and you require plants that need different composts you can divide it by slate divisions. For the sides we would advise slate; from 1 to 1½ inch thick would be sufficient, and 18 inches deep. They may be in lengths of from 6 to 8 feet, and 18 inches wide, with the ends on the brick-on-edge. You can secure them with iron bolts passing through the back wall, and screws. You will need two bolts, one about 3 inches from the top, and another about 3 inches from the bottom, and of course at each end of the slabs. The ends may be of slate and grooved-in, and the length may be divided in like manner. The bottom you may form of thick ordinary slates, leaving sufficient openings for drainage, and on the slates 3 inches of rubble should be placed for drainage. The appearance, when the whole is done, would be good and neat, and may last for years. The use of Wood would last a long time, but it is neither so good nor so durable as slate. You will only need the front; the back will be formed by the back wall.

**CLERODENDRON BAILOUTIANUM PRUNING (A. T.).**—Now is a good time to trim this plant, and in doing so cut out the old wood, and shorten the very long shoots so as to encourage the plant to grow lower down, and to shoot young wood or shoots for future growth. The plant having been rested and kept rather dry, as it ought to be before pruning, we should now keep it rather moist, but not to water it much at the root, and give a slight increase of temperature, say 65° at night, and 70° to 75° by day on dull days, and 10° higher with sun and air. When the plant has made shoots a few inches long put it in a compost of two parts loam, one part peat, one part leaf soil, and one part formed of equal quantities of charcoal and peat from the size of a pea up to that of a hazel nut, and silver sand. Good drainage is necessary; and when the plant is turned out of the pot remove all the soil that comes away readily, and yet preserve all the roots practicable. Maintain a moist atmosphere, shade for a time from bright sun, and water carefully until the roots are working freely in the fresh soil, then water copiously as required. Afford a light airy position, regulating the shoots frequently, and train them so that they will be fully exposed to light. When a good growth has been made give no more water than enough to keep the foliage from flagging.

**PLANTS FOR THE BACK WALL OF VINEYARDS AND CONSERVATORY (Inquirer).**—We would have the wall wired or walled in at ground level, the early house Orange trees, training them against the back wall, and they will give an abundance of blossoms and fruit. The back wall of the late house we would plant with Camellias, and the conservatory wall with Camellias, or Luculia gratissima and Hahoru-horu elegans, both winter-flowering plants, the former sweet-scented. To suit the last two, however, the wall must not be shaded by plants close to them or on the roof. The wall 64 feet long and 10 feet high, with a N.E. aspect, you may plant with Cotoneaster microphylla, or Kæmpfer's Ivy, but we think the former would have the most trim appearance, though the Ivy has an excellent effect, but requires trimming.

**SHADING GREENHOUSES (Weekly Reader).**—For a greenhouse, and indeed any house where only temporary shading is required, shade with light or canvas, both of which you object to; or mix whitewash and milk, and brush them to the canvas, and the canvas will be protected from the mixture over the glass when the latter is quite dry, and inside the house, as when put outside it is very liable to be washed off by heavy rains. To give a frosted appearance you have only to dash a painter's dry dust brush against it before it becomes dry. The brush must be dashed lightly and sharply on the wash, and at right angles to it. The value of this consists in its being easily rubbed or rather washed off; it can be put on in a few hours, and removed in half the time whenever you do not wish for shade, which is not the case for greenhouses, and in the hall the year, whereas if you employ oil, as painters do in frosting, it is very difficult to wash it off.

**EDGING IRON (Idem).**—We consider it very desirable that an edging knife or iron should have a half-moon point, and if one were made with an arrow head or triangular shape, the point, we think, would soon wear round. The form you propose would not cut so much at a stroke, and the upper point of the knife of the side you were cutting with would catch in the ground and tear up the turf, leaving a ragged edge. Of course we are open to conviction, and if you find it answer we should be glad to hear of it. Any smith would make you one of the form you describe.

**MARANTA ZEBRINA AND REGALIS (A Young Gardener).**—The injury to the leaf of *M. zebrina* is caused by the dampness of the atmosphere, accompanied with cold. It is usual for the foliage to exhibit this tenacious time of the year, and it is not the same as the injury to the leaf of the same if the atmosphere be not kept uniformly moist, with moisture—no, however, from syringing, nor pouring water on pipes or flues. It is advisable in winter to maintain a rather low temperature, say from 55°

to 60° at night, and *M. zebrina* will do in one of 55°; also to keep the plants rather dry at the roots, encouraging them to spring with a good brisk heat, a moist atmosphere, and slight shade from bright sun. We think the foliage will come to its proper condition as the season advances.

**CAULIFLOWERS (Lycoramus).**—Cauliflowers sown on May 21st, pricked out July 8th, and planted on September 6th, 1869, ought to have formed good heads in October and November. We usually sow from the 21st to the 24th of May, and plant out at the end of July or early in August, and have fine heads early in October. How to account for the plants not heading we do not know, except that the seed was not that of a Cauliflower, but of some sort of Broccoli, but then some of the plants running in autumn would indicate they were Cauliflowers. I think that the plants were in the seed bed, and in the bed into which they were pricked out, is sufficient to account for their running, even if Broccoli, which we think they are. You have had wrong seed. The plants left will be ready this spring, but it is not improbable they will be open and seed-like.

**ERRATA.**—In notes on Potatoes, page 180, third paragraph, for "we must distinguish it," read "5." For "Early Goodwill," read "Early Goodrich."

**MEALY BUG ON BEECH TREES (A Subscriber).**—The insect you have on the Beech trees is a species of scale. It may be destroyed by washing the stems and branches with persulfate oil, diluted with an equal quantity of water, applying it now with a brush.

**CHRYSALIDES (W. N.).**—Every one of them was crushed by the Post-office pouches.

**NAMES OF FRUITS (J. M. L.).**—Your Pear is the Verulam.

**NAMES OF PLANTS (N. W.).**—1, *Lecanopogon Richii*; 2, *Ardisia crenulata*; 3, *Pereskia aculeata*. (*C. H. D.*) 4, *Goldfussia isophylla*; 5, *Lobelia dorandua*. (*A Young Gardener*)—1, Some *Grevillea*, possibly *G. rosen*; 2, *Paeonocodon prolifera*; 3, *Diosma capitata*. (*J. H. S.*)—1, *Polyedum punctulatum*; 2, *Polyedum salicifolium*, by some made a variety of *Lycopodium*; 3, *Oncidium japonicum*; 4, *Doodia lineolata*; 5, *Polyedum Phymatodes*, *Silardieri*; 6, *Cyrtium*, *Stenandrium*; 7, *Adiantum displumna* (syn. *A. schlothei*); 8, *Doodia caudata* (very young state); 9, *Polystichum angulare*, var. *lobatum*; 10, *Lactea dilatata* (a form); 11, *Polystichum angulare* variety; 12, *Adiantum affine*; 13, *Polystichum angulare* variety; 14, *Bryophyllum calycinum*; 15, *Rochia fasciata*. (*A. Young*)—1, *Adiantum dilatatum*; 2, *Adiantum affine*; 3, *Lactea Filix-mas*; 4, 6 and 7, *Doodia caudata*; 8, *Adiantum hispidulum*; 9, *Pteris cretica alba-lineata*; 10, *Nephrodium molle*; 13, *Asplenium erectum* var. *tenellum*. Nos. 2 and 5 have become separated from the specimens. An *Adiantum* with small rounded leaflets is *A. ethiopicum*; another with very large leaflets is *A. sinuatum*, a valuable species. There was also a *Scorpa*, probably belonging to *Doodia lunulata*. (*J. Richards*). We cannot name plants from their leaves only, we must have flowers too. The name of the "white" is *Adiantum*, and the "black" is *Adiantum*. If they are wireworms they are one of the gardener's foes.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### MR. W. CROOK'S ARTICLE ON PIGEON-

#### KEEPING.

As the Pigeon authority of this Journal, I feel it my duty to protest strongly against the article in last week's number being supposed to be original. It is not Mr. Crook's at all, but simply copied line by line, indeed almost word for word, from Daniel Girtton's New and Complete Pigeon-fancier, published about the year 1800, according to the authorities of the British Museum, but I incline to think a few years earlier. It is all extracted from Girtton's work, beginning page 114, ending page 124 at the words "constant diet." And the diseases which Mr. Crook intends to treat of in his next article are written in the same order as Girtton's, and the best methods of preventing Pigeons leaving their habitation," &c., are all Girtton's words. The only original part are three lines and a half, in which Mr. Crook draws in Sky Tumblers, and inserts the word "Sky" in another place. But this is not all. Girtton's was only the second edition of "The Treatise on Domestic Pigeons," published A.D. 1765. So that Mr. Crook's original article was written, every word of it, and printed just 105 years ago; if it were written originally by Mr. Crook, he must be now at least 125 years old, or, as he would need a good deal of experience to write so accurately and practically, we will say 135 years old. Swasea must be a healthy place.

However, I wish to make no jest of such a piece of barbaled literary plagiarism, but rank it with trimming, painting, and staining. Further, a judge of literature would perceive that the article in question is written in the old-fashioned English of the last century, and let the papers on Sky Tumblers pass, regarding some of their contents as mere good-natured "chaff," but this I cannot let pass.

Readers of this Journal for the last seven years will understand how I have always striven to help to cast a genial, kindly influence over the pages of this our favorite publication, and therefore they will equally understand the pain it causes me to write with severity, but surely severity is in this case due.—WILTSIRE RECTON.

P.S.—This cannot be the case of a person writing from

memory, but of laying the book before him and copying each sentence in its order.

[We have received other letters, pointing out the wholesale plagiarism from "The Treatise on Domestic Pigeons," published in 1765. We had two other communications from Mr. Crook, and they also being similar plagiaries, have been returned with an expression of the contempt such conduct merits.—Eds.]

### THE STAINED FEATHERS AT TORQUAY.

I HAVE, through the kindness of one of the Judges, had the opportunity of examining the feather cut by them from the disqualified bird at Torquay. There is no doubt about the fact, and detection does not appear to prevent the continuation of the practices. Such practices throw a slur and evil reputation upon all poultry-breeders. Let my partner was at a rector's house, and saw some Cocks which he admired; he was told their parentage, &c., and he then replied, "My partner," alluding to me, "is a great fancier, and takes a number of prizes at the shows. Why do you not try?" The reply was, "Oh, yes! Those professors play no end of tricks—dye feathers, prop up combs, put on new tails, pull out vulture hocks, &c.; there is no chance for an ignoramus like myself." When my good partner brought me home this reply I felt highly flattered at being considered a "professor of trimming," equal, I suppose, to Madame Rachel, and one of those up to any trick; but this proves how the public are apt to regard all who take prizes as guilty of such practices.

How do these things occur? I must confess I can hardly believe any true fancier would act so; it is degrading to our pursuit, and must ruin it if not checked. You ask, "We shall be obliged if anyone so acting will explain in what he differs from a pickpocket." This is a question which I should like to see answered: it will be nuts to some of us and pickles to others, but will require, I fancy, a great stretch of imagination to answer satisfactorily.

Will it come to this—that the honest exhibitors will decline to enter at a show where any breeder convicted of such misdeeds is allowed to exhibit? I throw out the hint to my fellow sufferers, for who knows how many prizes he may have lost by the non-detection of the deceit?—Y. B. A. Z.

P.S.—On the subject of dyeing I lately heard an anecdote. A young lady was relating to a gentleman the story of their old nurse, who, being one of the olden time, disliked red hair, now so fashionable. She had been telling her young mistress what a very eligible offer she had had in her time—a most respectable tradesman in a capital business, steady, well-to-do, &c.; "but then you know, miss, he had such red hair that I could not abide him!" The gentleman replied that this was rather hard, as his love and devotion being so strong, he doubtless would have died for her sake. But what is this to the devotion of some of our exhibitors, who will dye for a paltry prize?

### MR. YARDLEY AND THE PRIZE PIGEONS AT WOLVERHAMPTON.

THE assertion made by "YOUR CORRESPONDENT," that "some of the birds in question," including mine, "were sold by Mr. Yardley to the parties named," has not one word of truth in it, at least so far as I am concerned. I have never purchased a single bird of Mr. Yardley, or had any dealings with him until a few days ago, when I sold him the pair of Fantails which took the first prize at Wolverhampton, for £4 in cash and his pair of birds that took the second prize at the same Show. I can only say that I would not have taken that price for them, but for the fact that I am declining keeping Pigeons.—W. H. TOLINSON, Newark-on-Trent.

### THE PERVERSITY OF EGG-BUYERS AND SELLERS.

AMONGST the subjects affecting the poultry yard, there are few that more require reform and arrangement than the mode of selling both eggs and poultry. By the present system "eggs are eggs," and a dozen little things weighing about 20 ozs., the produce of little half-starved hens, will sell for as much as a dozen Cocks or Brahma eggs weighing, as mine do, on an average 29 ozs. And the same may be said of fowls and chickens; one buys for the table a "feathered lipped," with little but feathers and bones, weighing some 2½ lbs., at the same price as a plump Dorking weighing 5 or 6 lbs., and vice versa, unless we do the dealing ourselves, and take care to get the benefit of the mal-arrangement by selling the lean kind and buying the plump; but as

both parties cannot do this, it cannot by any care be made to "work well," the usual apology for old abuses. As I, for one, am neither disposed to buy nor keep the worse sort of fowls, and therefore do not have the less sort of eggs laid in my nests, I and all improving poultry-keepers are always at a disadvantage, and the country is loser by the little encouragement held out for improving the stock. What would our breeds of sheep and cattle be if one sheep or ox sold for as much as another, irrespective of size and quality?—M. E.

[The remedy is in the hands of the purchasers and vendors solely. Butchers are too mindful of profit to give the same price for the small and ill-conditioned as for the large and superior animals, and we suspect that shrewd housekeepers, too, would not buy Bantams' eggs if they could obtain Spanish. If buyers will give the same price, and sellers will take the same price, for large and small eggs, no rule can be devised to prevent them.—Eds.]

### FLYING TUMBLERS—BIRMINGHAM ROLLERS.

As much correspondence has, of late, appeared in your columns in reference to the above, in which many allusions have been made to this town, a few remarks from a Birmingham fancier, and one who till a year or so since has had considerable experience in the flying fancy, may not be uninteresting.

In the first place I should like briefly to allude to your correspondent's remarks in page 175, in which it is stated that Mr. George Phillips, who resided at the Mount, near Handsworth, was the first to introduce the Roller Pigeon. In regard to this statement I beg respectfully to say that your correspondent has made a mistake; I have only this evening been in company with two old fanciers, who have for years flown some of the best Tumblers in this town—one of them for the last forty-five years—and both of whom knew Mr. Phillips well. They assured me that to their own knowledge good Rollers (if not better than there are now) were flown in Birmingham years before Mr. Phillips kept them, in fact, for the last hundred years.

The elder of the gentlemen to whom I allude had a brother who flew them seventy years ago, and a bit was flown by the father years before either of them. First-rate Rollers were also flown by a person named Bunney, of Ashted, and a Mr. Piercy years before Mr. Phillips, who, however, as Mr. Hardy remarks, was a thorough enthusiast and possessed remarkably good birds. They were not, however, the clean-cut birds that are generally recognised as Baldheads, but birds with white heads, "slobbered," as it is termed here, down the throat and neck with white.

Now in regard to the Tumbler, some thousands of which are flown in Birmingham at the present time, judging from what has appeared in "our Journal" from time to time, very many erroneous impressions seem to be held in regard to them and their performances. One seems to be that all Birmingham Rollers are necessarily coarse, large-bodied birds with heavily-feathered legs. Such birds are no favourites with the best fanciers here, for there is, as a rule, not one of that description out of twenty that is a good bird in the air. The best, on the contrary, are short and compact in body, full-chested, with moderately short bills, round heads, and white flight feathers. The old fancier to whom I have alluded would not allow a muf-f-legged or dark-winged bird in his flight, and all his birds answer to the characteristics I have named, their colour being mostly blue and bronzed badges, the latter exceedingly pretty birds. The colour, however, of the generality of the Birmingham birds are very various, for as Mr. Hardy states, more attention is paid in matching them for breeding to their qualities in the air than to their colour.

An impression seems to prevail also that all Tumblers that come from Birmingham are Rollers—at least, they are all called Birmingham Rollers, whereas, where there is one that can roll there are dozens which can scarcely tumble at all. Kits of Rollers and mad Tumblers—that is, in which every bird can roll or tumble—are only in the possession of the best and oldest fanciers.

In the majority of those flown here, where there are one or two good birds there are a dozen that are not worth more than 1s. or 1s. 6d. each. Warranted good Rollers fetch from 6s. to 10s. a-pair, and I have myself given 10s. for single birds. They are to be had from any of the numerous dealers here, but the best way to obtain them is from some well-known flight if you want to depend upon their "turning out" well.

The average number of a good working kit is from twenty-five to thirty; if there are less than twenty they do not work very well together at the turn, and if many more than thirty they do not fly so long nor so high as the number I have stated.

The average time of flying is from half to three-quarters of an hour; an hour is considered a good fly. They should keep well together, and not swing round, but fly steadily right and left, turning occasionally, at which time every bird should either roll or mad-tumble, and that in such a manner that when the kit is well round there should be no stragglers, but all compact and steady again.

One remarkable circumstance I have noticed is that all good kits usually turn to the right, seeming to avoid turning to the left as much as possible, which turns, however, when they do take place, are generally the best as regards the working of the birds; for if there are any good birds among them they are sure to tumble well then—in fact they seem as if they could not help it, and on that account try to avoid turning in that direction. It is strange, but such is the case.

In regard to the statements that have appeared in your columns of kits flying regularly six or seven hours, all I can say is, that when such do happen it is always to the sorrow and loss of the owners. Such flights are what are termed in Birmingham "flyaways;" and one a-year is quite enough for any fancier who possesses a valuable flight; after such a flight the majority of the birds seldom, if ever, make their appearance home again. As an instance of this, I may mention that the two gentlemen to whom I alluded at the commencement of this communication, stated that their flights about four o'clock in the afternoon of February 26th both joined and flew till no one knew what time, as they were up at dusk, and the consequence was the old fancier whom I have mentioned was thirty-one short, and the other seventeen, and the former would not have taken £20 for his birds. The two or three that came back came in during the following two days, the others have never been heard of since. Perhaps they are the sort some of your correspondents possess, and are having their fly out still. During the last Birmingham Poultry Show I took three London fanciers (two of them the best, or at any rate two of the best, of our officiating fancy Pigeon judges) to witness the performances of this very flight, and all expressed themselves highly gratified with their visit, although it was a very unfavourable day to see the birds at their best, a very high wind prevailing. They were also very much struck with the owner of the birds, who is what is now-a-days a rare specimen of a thorough-going old fancier. I have no doubt that when the gentlemen alluded to see this they will feel genuine regret that so good and pretty a flight should have been so dispersed. However, I have no doubt another equally good will soon replace them, such a misfortune being nothing new to him, as he has plenty of stock birds left, and has always bred his own flights, being very chary of admitting a strange strain amongst them.

Mr. Hardy states that "mad Tumblers" obtain their name in consequence of their tumbling "so much and so carelessly." A mad Tumbler should not tumble carelessly, or he would be very soon discarded from a good kit. These birds should only tumble at the turn of the flight, when their performances should be as quick and neat as possible. Most of them can short-roll also—that is for a yard or so. As a rule they form the majority of the flights, and it is their performances altogether that lend the greatest effect to the turns of the flight.

And now I must draw my remarks to a conclusion, although I could say much more on this interesting topic, both in regard to breeding and management. I should just like, however, briefly to allude to one or two more of Mr. Hardy's remarks.

First, as to keeping the birds "as thin as possible." Birds regularly flown do not want keeping thin, their exercise will keep them in proper condition; besides, if they are stinted in food they cannot fly, and disease will very soon break out in the loof. They must have plenty of food to keep up their strength, or if they go from home at all in a wind, or "fly away," they have not strength to return. He recommends feeding them on maling barley. Such a thing was never heard of or done here. They should be fed on good sound, old, small grey peas—no food is better for them—and for a change give a handful of good old English wheat occasionally. The best way is to feed them till they drink, and give no more, and always to fly them with their crops empty, or the food in them is apt to choke them when rolling, and cause them to roll down. Most of the Birmingham birds are fed on peas and Indian corn, mixed and separate, but the best fanciers here discard the latter.

Breeding commences in March, and terminates at the end of July as a rule; for birds bred after that date cannot moult out before winter, and are sure to be lost from want of stamina.

Mr. Hardy says, birds being too fat is the cause of their rolling down and killing themselves. Birds too fat will not fly; birds

regularly flown will not become fat. Sometimes birds bump themselves against the chimneys, or on the slates from rolling whilst too low, that is not rolling down; but when they come down from a good height, as I have had them do at three or four months old—which is caused by being too high bred—they are seldom, if they do not kill themselves, fit to fly again. If they come once in that way they generally repeat it every time they are flown, so that it is downright cruelty to fly them. —H. T., Birmingham.

[Pray detail the desirable mode of breeding and management more fully.—Eds.]

THE Short-faced, round-headed, little flying Tumbler having been neglected so long, the breed has become almost extinct. The fashionable prize Short-faced Tumblers of the present day are useless for any amusement in flying, being bred so delicately that they are not able to feed their own young ones, and so weakly that they could hardly fly to the top of their owner's bedstead if required. Still I am happy to say there are a few.

In choosing these birds I would recommend either Blacks or Reds, or Black or Red Mottles; let them be as small as possible—plump, round, little birds with broad chests, and the shorter the wing the better. Do not purchase any without seeing them fly and tumble quickly and sharply; birds that clap their wings and sail either before or after tumbling should be rejected, as they will draw down your other birds however high these may be. No doubt many gentlemen complain of their birds being brief on the wing and unwilling to moult; I have never had any such difficulty, although I have often been at a loss for a method of getting them down when they have ascended so high as to go out of sight. Be satisfied if your Tumblers will fly an hour, it is quite long enough till you know your breed of birds thoroughly.

If they are kept on good heavy barley they will always fly steadily and well, if you have fine weather and a cloudless sky. Their food can be changed to Indian corn, or beans, or peas. They require to be kept very clean, their pen scraped out every other day, and fresh sand scattered on it. During the breeding season they require plenty of old mortar. A good substitute is half a pail of sand, half a pail of stone-mason's dust, and about 1 lb. of salt, mixed together and made into a paste with water; let it stand to dry, and when you require it break it into pieces, and your birds will eat it up ravenously.

I have always found the Black or Red Mottles the best flyers and tumblers; some prefer the various-coloured Baldheads. They are usually coarser birds, and do not look so small and compact when flying. Some of your readers will, no doubt, exclaim, Where can I get these little Tumblers? I do not know. About three years ago I commenced collecting them, and paid one or two visits weekly to the numerous Pigeon shops in and about London. Out of nearly two hundred which I have purchased I have only had the good fortune to meet with six or seven that come up to my standard in flying high and tumbling quickly and sharply.

The method I adopt with fresh birds is this:—I keep them two or three days without food, giving them water, and then let them out with my old birds. I have not lost more than a dozen out of the large number tried. If the Pigeon-keeper do not like to adopt the low-diet system, the same object can be achieved by tying the six flight-feathers of one wing twice with thin string.

Fanciers must not expect to raise a flight of these birds in a month, it requires time. Having started two or three gentlemen with the breed, I always advise them to be patient. Any person living near a high building, such as St. Paul's Cathedral, or any place where he cannot start them from, I would advise to immediately remove to a more convenient situation.—G. HARDY, 10, Fulham Road, London.

## THE DRAGOON PIGEON.

Is it asking too great a favour on behalf of brother fanciers and myself that you will publish a drawing and description of what a Dragoon should be? I have turned my attention of late to the breeding of these birds, hoping to be able to compete successfully with other breeders, but judges and others differ so in opinion as to what a Dragoon is, that I am almost disheartened, and feel inclined to give up the task as hopeless. For instance, I sent birds which took the first prize at one show, to another (within a week of each other), and they were

only commended; while birds which were not noticed at the former show, were first at the latter. I can only account for this by the different opinions of the judges as to what a Dragon is. What is wanted is a recognised standard. The drawing you gave of an Antwerp has greatly pleased all the Antwerp fanciers that I know, as it lays down a decided pattern to breed from.—FRANK GRAHAM, *Birkenhead*.

[If Mr. Percival and other Dragon breeders will send us the information asked for, we shall be obliged; and if the gentleman we have named will send us a drawing or photograph of a standard Dragon, we will gladly have it engraved and publish it.—Eds.]

### THE ANTWERP PIGEON.

It is only fair to me that Mr. Noyé should have said that which he knew, that when asked by the sub-editor of the *Field* to select my best bird I declined to do so, and placed my birds at the disposal of the latter for the time being, when he made choice of the young bird then at Wolverhampton, which had gained a prize, which I regard as an acknowledgement of appreciation of good breeding rather than present perfection. When I sent the bird I forwarded also an old one, which is perfection in every respect but colour, in order that when together it might be seen that the one was not sufficiently developed to be regarded as perfect, although deficient only in what age can give, and I suggested a representation of the young bird with the lash and wattle of the old one, or the latter shown as having good colour; and had my suggestion been carried out I think the engravings in the two journals would have been almost identical.

It may be asked, Have you then set up an ideal standard in THE JOURNAL OF HORTICULTURE? We have. The block drawing furnished by the Birmingham Columbarian Society is a semi-copy of the portrait of my old bird before mentioned, slightly modified so as to resemble the very blunt bill of Mr. Noyé's bird, and in doing so it becomes absolutely true of neither, but a compound. But this does not matter; we are justified in concentrating the various excellencies of our birds into a "standard," because all our desires may be obtained by careful breeding, and it would be unfair to show such a specimen as would allow a few to take their ease in monopoly of prize money.

My friend says that my birds were unnoticed at our Society's last Show. So they were. If it be true that such Antwerps are not to be found elsewhere equal to those possessed by members of this Society collectively, it would be strange if some were not noticed, for in such times awarding prizes to the best bird is no easy task; but if I did not win there, I am glad he did, because it is as much to my pleasure that my old bird bred his crack as for him to beat me with it, and as Antwerps require age for development, how shall my youngster compete with his five or six-year-old bird? I confess he is the best bird I know, as he has exquisite colour, and every excellence age can give a bird of this breed.

There would have been more of forbearance and kindly feeling had Mr. Noyé not referred to my Glasgow prize birds, because on the eve of my sending them, he said, "Mr. Bradley, who will beat them?" and after the show, reminded me of his prediction.

In conclusion, I beg to thank you for your assistance in a work so much needed, and which will, I trust, be of service to judges in awarding prizes to deserving birds which have only recently found a place in the prize lists of public shows, and also for permitting me to so express myself as to free my fellow members of the suspicion of acting in any underhand manner either to yourself or the public generally.—J. I. BRADLEY, *Birmingham*.

[We cannot insert any more notes on this subject.—Eds.]

### THE WILD TURKEY.

THE Wild Turkey (*Meleagris Gallopavo*) is a magnificent bird, and although now found almost throughout the globe by the process of domestication and naturalisation, is one of the many gifts of America to the old world, which fact at one time was nearly forgotten, as its origin was involved in obscurity, and doubly expressed as its native country. Thus, such men as Belon, Alrovandi, Gesner, Ray, &c., thought it came originally from the East Indies, and endeavoured to recognise it in some of the domestic birds of the ancients. "In so losing sight of the

origin of this bird, we see a strong exemplification of the ungrateful disposition of man, who can treasure up the memory of wrongs and injuries, but fails to recollect the greatest benefits he has received."

The Turkey was first introduced by the Spaniards from Mexico into Spain, and thence into England. In the reign of Francis I. they were imported into France, and the first one eaten in that country was served up at the banquet given at the wedding of Charles IX. in 1570. Bred with much care they rapidly increased, and soon were taken into Asia and Africa. It would be difficult to ascertain why its popular name was given to this bird, and it is to be somewhat regretted that such an appellation should ever have fallen to its lot, since it is apt to give rise to the supposition that it originated in Asia instead of America, the eastern in place of the western hemisphere—not so much to be regretted, however, at the present time as formerly, for since ornithology has taken its rightful place among the sciences, and its hidden things been investigated and explained by the researches of so many able minds, the results of whose labours dignify and elevate their subject, the origin of so noble a bird is not liable ever again to be lost sight of. At one time the Turkey was pretty generally distributed throughout the United States, but, like the Indian, it has gradually disappeared before the onward march of civilisation, until now one must look for it amid the unsettled portions of our western States, and the vast regions through which the Mississippi, Missouri, and their tributaries flow. It is still quite plentiful in the southern States, many parts of which are yet covered with the virgin forest, while in the middle and northern States it has almost disappeared.

The Turkey is considered as both migratory and gregarious; the first of these circumstances arising mainly from the exhaustion of its favourite food in any particular section of country, or upon the opposite fact of there being a great abundance of it in some other place. When this last is the cause of Turkey's migration they seem to be insensibly led toward the land of plenty by finding the supply increase as they advance, and not from any particular instinct of their own. Their food consists of maize, berries, fruits, grasses, acorns, and in that part of the country where it abounds, the pecan nut is preferred by them to everything else.

Audubon states that when he removed into Kentucky, rather more than a quarter of a century ago, Turkeys were so abundant that the price of them in the market was not equal to that of a common barn fowl now; and that he has seen them offered for the sum of threepence each, the birds weighing from 10 to 12 lbs. The average weight of this splendid bird is about 15 to 18 lbs., (I speak of the male), and of the female from 9 to 10 lbs. Some gobblers have been known to weigh much more than this estimate, and instances are not wanting where individuals have been obtained weighing 30 and 40 lbs. each, and this is rare. When full grown the male will measure 4 feet in length and nearly 5 feet in the stretch of its wings. The naked skin of the head and neck is blue, with the wattles red, as are also the legs. The feathers of the neck and body generally are of a coppery bronze, changing in some lights to a greenish or purplish shade, and margined with an opaque line of velvet black. The back and rump are also black, with little reflection, while the sides, together with the upper and under tail coverts, are dark chestnut, barred with black, near the end, and having metallic reflections of a rich purplish hue while the extreme tips are opaque purplish chestnut. The tail feathers are dark chestnut barred with black, and tipped with a light chestnut. Near the end is a band of black, broadest on the outer feathers, and narrowing as it approaches the central ones. Between the bars on the feathers is a confused sprinkling of black. Neither upon the tail nor its coverts is there any white, and this is one of the ways by which the wild Turkey can always be distinguished from the domesticated. From the centre of the breast hangs a coarse hairy tuft, not usually found in the other sex. The female differs principally in being smaller in size, less brilliant in colour, absence of the spur, and the small fleshy process at the base of the bill.—(*Boston Cultivator*.)

### NOTES ON CANARY SHOWS.

ON reading Mr. Blakston's remarks relative to the Crystal Palace Bird Show, I am strongly of opinion that he has omitted a very important case—viz., classing Ticked and Evenly-marked Belgians together. As a breeder of Belgians myself, I think it an unjust class to the fanciers of these favourite birds. I could have sent half a dozen Evenly-marked birds to the Crystal Palace Show, but did not, considering it unfair to show them along with Ticked birds, as it is a well-known fact that the

clearer the bird is the more properties it shows, and clear birds are generally considered preferable to the dark in judging them.

As Chairman of the Ornithological Society, at Nottingham, I have been requested by the Belgian fancy there, and at Sutton, and other places in the district, to draw the attention of the managers of All-England Shows in future to this subject, so that these birds may be shown in distinct classes by themselves, instead of being classed together as they have been at the Sunderland and Crystal Palace Shows, it being the general opinion that a greater number of these classes of birds would be then shown, as the Ticked fanciers do not like to show their birds with the Variegated, nor the Variegated with the Ticked. I should be much pleased if Mr. Blakston, or any manager of an All-England Show, would state the reasons why these birds should be classed together instead of separately.

Whilst on the subject of shows, I cannot refrain from remarking on the annoyance I have experienced from not receiving catalogues in proper time, particularly from Sunderland and the Crystal Palace; and although I wrote to the Secretary at the latter place, I have never received any, but was informed one had been properly posted. I then applied to the Postmaster General respecting it, but none is to be found. I could not conveniently go up to the Palace myself, consequently I had to borrow a catalogue from another exhibitor to see where my birds stood, and also whether there were any which I should like to purchase. On seeing the catalogue I wrote to claim two Belgian birds, but to my annoyance I was informed by the Secretary that he was sorry both birds were sold. If I had received the catalogue at the proper time my application might probably have been first, at least I should not then have had any reasonable complaint. In looking over the catalogue of the Palace Show, I find in the Clear Norwich class there are awarded equal first, equal second, and equal third prizes. Can any brother reader inform me when he last saw two faces alike?—W. HOLMES, Popham Street, Nottingham.

### CHEAP HIVES.

SINCE reading the letters that have lately appeared in "our Journal" regarding the cost of hives, I am induced to send you a few details which may be useful to "would-be beekeepers," who are deterred from "making a start," by the high prices asked for the better sort of hives.

When I resolved to try my hand at the now, to me, delightful subject of bee-keeping, my idea was to do it scientifically, if I could, but I never thought of spending £30 or £40 on hives; so having read Mr. Woodbury's description of his hive, with the assistance of a friend who is "clever" at joinery, I made a hive, as near to the description as was necessary, and the whole cost of the material did not exceed 12s. 6d., including floor-board, outer case, and roof.

We have since made two other "Woodbury's."

But the hive I wish to draw attention to, is that which will be found to preponderate in most large apiaries—viz., a cheap and efficient straw hive, which can be easily supered, is handy for feeding, and that will afford thorough protection to our little favourites in winter. This I have made as under. I get strawrims (made extra strong), 16 ins. in diameter and 12 ins. high, for 2s. each, American cheese boxes, 3d. each, pan mugs, 1s. each, and from these make the hives and outer cases. My stances are 4-feet-6-inch lengths from old ships' masts, and cost 1s. 6d.

Each; paint, putty, zinc for slides, nails, &c., less than 6d. Thus the whole complete, when ready for a swarm, involves an outlay of 5s. 3d. The lid of the cheese box forms the crown-board, the rim of the lid I use as a binder for the top of the outer case, and the bottom of the box, when it has been knocked out, serves for the floor-board, after being reduced in size a little, to allow the outer case to slip over it. This floor-board, being rather light, a strip of three-quarter-inch deal 5 inches wide is nailed under it, to keep it from warping, and to form the alighting-board. Two other pieces are

nailed in an opposite direction, and project half an inch beyond the floor-board; on these the outer case rests when pressed down. I also nail two strips of wood on the under side of the crown-board to strengthen it. The holes to admit the bees to the snipers are 6 inches long, three-eighths wide, and the hole in the centre for feeding completes the article, the entrances being made as described by the late Mr. Payne, in "Bee-keeping for the Many." I paint the roof, mugs, outer cases, and stances, stone colour, and I think it would surprise some of your readers if they saw how neat and compact the whole looks. The stances are sunk into the ground, so it is impossible to upset them; no bee-house is required, and with the aid of a few staples the hives are secured to the stances, so that no storm can disturb them.

The accompanying is a rough sketch of the hive.—W. BROUGHTON CAER, Higher Bebbington, Cheshire.

### TWO QUEENS IN ONE HIVE.

IN your number of July 2nd, 1868, will be found an account of two queens in one hive. I have this day come to the knowledge of a still more remarkable instance of the same kind.

In July, 1867, I bred a pure Ligurian queen, which, being crossed by a black drone, had the nucleus box made up into a strong stock. On May 14th, 1868, the queen's wings were clipped off by the hand of your correspondent "R. S." In June she went off with a swarm, and from the stock and swarm I took in that year 123 lbs. of honey in supers. Last year, after repelling several attempts, I allowed the hive to swarm on June 24th, and took from the stock and swarm 70 lbs. in a very poor season. She being now two years old, I was not surprised at the autumn examination on October 4th to find a fine young queen fully winged in possession. What, then, was my astonishment at the spring examination this day to find the old lady resuscitated. At first I thought her wings must have been nibbled off, but observing on one stump the clean cut of the scissors I looked over the combs again, and found her daughter with fully developed wings, both plump and well-conditioned, and apparently both breeding, as the hive is remarkably well brooded for the time of year.

It is my belief that this sort of thing happens far more frequently than we are aware of, as it is not always very easy to find the queen in a strong hive, and when found we rarely look further unless our attention be attracted by some remarkable difference of colour or other peculiarity.—AFRICOLA.

[The phenomenon of two queens dwelling peaceably together in one hive, was first noticed by Mr. Woodbury in our number of the 25th August, 1863.]

### OUR LETTER BOX.

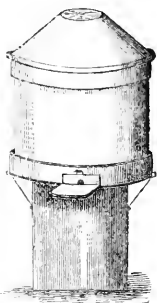
HENS AND PULLETS NOT LAYING (*Disconsolate Poultry-keeper*).—Our opinion is, that nothing can do well this weather. We dislike the east wind, we hate snow, because they prevent everything from that we so far from finding fault because all do not lay, we are very thankful to those that do. We believe from your description all your birds are about to lay, and will do so when the snow is gone, and the wind is changed.

CHICKEN MORTALITY EXCESSIVE (*Black Hamburgh*).—We see no reason why your chickens should die, unless you have over-cared them with sulphate of iron. We have had no complaints of mortality, and in our own stock we have hitherto lost none. We do not think ale and sulphate are so necessary, and we advise you to discontinue the latter. It is like all such medicine—useful when the patient requires it, but if taken regularly when it is not wanted, its properties cause disease, and if still persevered in, death.

HOUDANS FEATHER-EATERS (*J. L. G.*).—You are suffering from the plague of Houdans. Remove the two feather-pickers, but we give you little hope of curing them; we are trying for the third year, but we have no hope. We have tried everything we know, but as everything has failed, we can point to no remedy except one, to give them their liberty and a run.

HEN DISEASED (*J. B.*).—You should have told us the breed of the hen. In a Spanish hen it would be the beginning of an incurable disorder. In any other breed it is, as you rightly imagine, incontinent, or it may be caused by cold and east winds. She has a good constitution to have taken so many remedies without mischief. You have only one more to try, Baily's pills. Keep the face well washed with cold water, and vinegar. Under any circumstances and with any other medicine, give daily a pill of camphor the size of a pea.

VARIETIES OF GAME FOWL (*Duckwing*).—Many names are given to Game fowls which belong only to districts, and are known only in certain localities. The original terms were Duckwing, and Silver Duckwing. We can show lists of cocks and weights as they were fought about 150 years ago, and they would give an endless variety of sobriquets, some of which would be offensive to ears polite. The yellow and the tawny were identical birds, they had yellow legs, and their hackles and saddles as



well as their feet are golden yellow. The last treacle-breasted we have declared by good judges to be a "child of thirty-six fathers," all of different nationalities. We do not know the "marigold."

SPANISH FOWLS (*E. R. P.*).—We know no such establishment as you seek. Mr. Jones and Mr. Lane, are both large Spanish breeders at Bristol.

DRUMMERS AND HODDINGS (—).—Winter laying is not the attribute of a breed, but the season of the year, or rather of arriving at a certain age. Fowls lay when they attain maturity, but even in the laying season comes. Even these results are affected by weather and condition, and as the latter is often the result of the former, it will be easily understood that weather such as we have had is not conducive to laying. These, again, other causes, such as insufficient food when young, causing tardy development. The rule may be, that birds of the breeds you name should lay at six months, but there are exceptions. Again, the birds lay much later if they are kept in confinement. Pullets hatched in June are hatched too late for winter laying. April and May are the proper months for breeding them, because they get out of their early troubles while the days are still lengthening, and the nights becoming shorter. The hens are more affected by the weather than pullets. Our own hens are not laying, but the pullets have begun to regularly the last three weeks. Fowls, like all other things, are very backward this year; but lately eggs were not to be had, and now the cry is for sitting hens. Nothing is more common than for fowls to begin laying and to cease if the weather change for the worse. Not for nothing did the ancients call the Pheasant and Plover the same. You have suffered from the weather; a change for the better will make you forget all your disappointment, and you will accelerate the result if you allow them to run every day in the kitchen garden instead of in the poultry yard.

GOLDEN POLANDS (*E. R.*).—Either of the following contains the points:—"The Poultry Book for the Many" and "Poultry-keepers' Manual." You can have either from our office post free if you enclose with your address for the first five postage stamps, and for the second 7/10d.

CHANGES OF COCK BIRDS (*A Lover of Game Bantams*).—If the hens have only just begun to lay, they may be kept in the hen house until before you begin to set them. If the new cock was put down when they had laid half their eggs, set only the fewest they lay. You may breed at the same time, and when you please, but it is very difficult to breed prize cocks and hens from the same parents.

HENS NEARLY FEATHERLESS (*W. J. Subscriber*).—Your fowls are eating each other's feathers. We are sorry we know no cure. In our anger we vowed we would kill every hen we caught at it. We killed three, and then reasoned with ourselves. We are determined not to be beaten, and therefore we have seven fowls in seven pens or cages.

NATIVE COUNTRY OF POLISH FOWLS (*Nat. Figh.*).—Nothing certain is known about their derivation. It is probable that the Spaniards brought them to the Netherlands, from whence they passed to England. In the paintings of the three Hendekers and other artists of the Dutch school, some nearly 50 years old, they are almost ever present. The youngest of the three, who is said to be a Spaniard, is a cock, and remain in any attitude he wished whilst drawing from it. It is certain that they did not originate in Poland, and their name, probably, was applied in consequence of their crests and the very peculiar formation of their skull or poll.

GUINEA FOWLS (*E. R. P.*).—Guinea fowls are hardy and good layers. They sit well, but it is well to put some of their eggs under common hens to bring them up as tame as possible. They are fed like other poultry, nothing comes amiss to them. They are good foragers, and the real "grey" of the poultry yard. They are very hardy and steady, and need in an out-of-the-way place. There is a disputed point with regard to them. Some, and we are of the number, believe them to be monogamous, others keep one cock to three or four hens, and say their eggs are good. Except when kept in pairs we have never found any result from the eggs.

HATCHING PHEASANTS' EGGS (*Idem*).—They can be and are hatched under Turkeys. The same food will do for both, for both are alike during the first days of their existence.

VERICOLOR PHEASANTS (*L. F.*).—We know of no place where the eggs of the pure Vericolor can be bought. A pair of the birds can be had for £14, and the price of a pair of the Vericolors is £25. We know of no work on foreign Pheasants. They both breed at one year old. The Vericolors are very numerous at the Duke of Wellington's, at Strathfieldsaye, and many other preserves, but, of course, there are none to be sold. Good Milet is good for any bird, but we prefer canary as general food.

ANTWER PIGEON (*E. H. F.*).—The woodcut we published is the standard now agreed upon. The only material correction needed is owing to the artist representing the flight feathers rather too long and too many.

MR. WATTS' PIGEONS.—At the recent Show at Torgny I took first prize in the "Other variety" class, viz. my Blue Swallows, and not with the Mamee as reported. At the Birmingham Philopeterist Society's Show the second prize for Blue Antwerp was taken by my bird, and not by Mr. Cleveland's, as stated.—J. WATTS.

TURBIDS (*Turbids*).—Turbids are light and active on the wing—indeed, very pretty fowls to look at. They are very hardy and steady, and are preferred. If you exhibit, both birds must be alike, both crested and point-crested. A pair could live, as we see they do in dealers' shops, in a rabbit hutch, but how long they could live is another thing.

PIGEONS' NESTS, &c. (*B. K.*).—We think straw nests, if used more than once, must verily rot. You can have the undressed earthen pans made for you at any pottery, 8 inches across at the top for Turbids, and 3 inches deep. Put in them short straw—i.e., straw cut up into lengths of about 4 inches, and hollow the straw with your hand like a bird's nest. We ourselves never use baskets or pans, but simply put a little straw in the nest hole, with a few 3 inches deep, and keep the nest in. We should not like to eat fowls that are accidentally drenched with their flesh would not be injurious. Dragon is the correct spelling for that variety, young or old. The bird bred from a Carrier and a Pouter is called a Fonging Horecanan.

POINTS OF HIMALAYAN AND SILVER-GRAY RABBITS (*Nym*).—The points of the Himalayan lay almost entirely in the markings. The nose, ears, feet, and tail must be a deep rich brown, the more intensely dark and sharp

the better, while all the rest of the Rabbit must be white. It is of the utmost importance that the dark patch rising about an inch and a half above the nose should not extend more on one side than the other. Supposing two specimens to be equal in depth of color, and in straightness of limb, that having the finest and most lustrous fur would be chosen, this being a special property in the variety. The Silver-Grey should be light rather than dark, and the light rabbits should rather be a little more of a bluish whiteness. There is some difference of opinion as to whether the head should be light or dark, some holding that it should be light like the Chinchilla, for whose fur this Rabbit's is often substituted, but certain it is that of late years the prize has been mostly by ear and tail, and what remains of dark muzzles and ears. The size of the Himalayan and Silver-Grey are not taken much into account at shows; it is of far more importance that the pair should be of a good match.

WOODEN HIVE (*T. M. N.*).—There should be a space of from a quarter to three-fourths of an inch between the front-rack of the hive and the ends of the frames. The stock should not be transferred to a frame hive until the coulis are completed, and the present hive well filled with bees.

SIZE OF A COMMON STRAW HIVE (*A Subscriber*).—16 inches diameter by 10 to 11 inches deep will be a good size for common straw hives.

CURING HAMS (*A Man of Kent*).—We prefer the Westphalian mode, but we insist the Yorkshire mode also. Westphalia.—Rub the ham well with 4 ozs. of pounded saltpetre, and let it lie till the next day. Beat a quart of the strongest stale beer with bay salt, common salt, and brown sugar, or an equal part of each, and rub on the ham, rubbing it all over thoroughly; and at the end of that time twice every day for a fortnight, turning it once a day. At the end of that time take out your ham, and hang it pretty high in the chimney with a fire made of sawdust and horse litter (fresh every night), for three days and as many nights, after which hang over a smoker's fire, and let them take a dry place where they are smoke from a wood fire. Be sure you fill the hock bone with salt. Yorkshire.—Beat the hams well, and mix half a peck of salt, 2 ozs. of saltpetre, 1 oz. of sal prunella, and 5 lbs. of coarse salt. Having rubbed the hams thoroughly with this, put them into a pan or tub, and rub, and what remains of the mixture over them. After lying three days hang them up; then put as much water to the pickle as will cover the hams adding salt thereto till it will bear an egg; then boil and strain it off. Next morning put your hams into the pickle, and keep them down, so that they may be thoroughly covered. After lying a fortnight, take them out, rub them with bran, and dry them. This is the way to cure three hams, therefore to do only one the ingredients must be proportionably less.

## COVENT GARDEN MARKET.—MARCH 16.

A CONSIDERABLE falling-off in the supply of on-door produce has been the result of the late changeable weather, and this holds good of every description of goods with the exception of Cornish Broccoli, for which there is a steady trade. Imports of continental produce have been regular, and comprise capital Lettuce, cabbages, Cabbage and Caul, Endive Barbe de Capucin, Radishes, Carrots, Cauliflowers, Kidney Beans, and Asparagus. There have been large arrivals of Potatoes, both by rail and coastwise, and prices are falling.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....doz.	6	0	Malherbes.....quart.	0	0
Apricots.....doz.	5	0	Lettuce.....doz.	0	0
Cherries.....doz.	10	0	Nectarines.....doz.	0	0
Christmas.....doz.	10	0	Oranges.....doz.	10	0
Currants.....doz.	10	0	Pears.....doz.	10	0
Black.....doz.	10	0	Pears, kitchen.....doz.	3	0
Blue.....doz.	10	0	Desert.....doz.	4	0
Filberts.....doz.	10	0	Plums.....doz.	10	0
Gobs.....doz.	10	0	Plums.....doz.	10	0
Gooseberries.....quart.	0	0	Quinces.....doz.	0	0
Grapes, Hothouse.....lb.	8	0	Raspberries.....lb.	0	0
Lemons.....doz.	10	0	Strawberries.....doz.	4	0
Melons.....each	6	0	Walnuts.....bushel	10	0
			do.....doz.	10	0

## VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....doz.	3	0	Leeks.....bunch	0	0
Asparagus.....doz.	10	0	Lettuce.....doz.	0	0
Beans, Kidney.....doz.	5	0	Mushrooms.....pot	0	0
Broad.....bushel	0	0	Mustard & Cress.....pound	0	0
Beet, Red.....doz.	2	0	Onions.....doz.	0	0
Broccoli.....bushel	1	0	Pickling.....quart	4	0
Brussels Sprouts.....sieve	2	0	Parsley.....sieve	3	0
Cabbage.....doz.	1	0	Parsnips.....doz.	0	0
Capicauis.....doz.	10	0	Pots.....quart	0	0
Carrots.....bunch	4	0	Radishes.....bushel	2	0
Cauliflower.....doz.	3	0	Radishes.....doz.	1	0
Celery.....bushel	1	0	Rhubarb.....bushel	1	0
Coleworts.....doz.	6	0	Spinach.....bushel	0	0
Cucumbers.....doz.	2	0	Sea-kale.....bushel	0	0
Endive.....doz.	2	0	Shallots.....lb.	0	0
Fennel.....doz.	2	0	Sprouts.....bushel	0	0
Garlic.....doz.	1	0	Tomatoes.....doz.	0	0
Herbs.....bunch	0	0	Turnips.....bunch	0	0
Horseshall.....bunch	0	0	Vegetable Marrow.....doz.	0	0

## POULTRY MARKET.—MARCH 16.

We have little change to note. Trade is bad, and all 'pin their hopes to a change in the weather. Unless it come soon, we are likely to have a scarcity of good young poultry.

	s. d.	s. d.		s. d.	s. d.
Large Fowls.....3	6	0	Partridges.....0	0	0
Smaller ditto.....2	6	0	Pheasants.....0	0	0
Chickens.....2	0	0	Pigeons.....0	0	0
Geese.....2	0	0	Hares.....0	0	0
Cocks.....2	0	0	Rabbits.....2	0	0
Ducklings.....4	0	0	Wild do.....0	0	0

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	MARCH 24—31, 1870.	Average Temperature near London.			Rain in last 42 years.	Sun. Rises.	Sun. Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
24	Th	Meeting of Royal and Zoological Societies.	48.7	51.7	50.2	16	57 45	17 46	3 42	19 31	3	6 23	83
25	F	LADY DAY.	50.9	52.8	51.9	16	54 5	18 6	1 3	11 11	4	6 4	84
26	S		51.8	52.6	52.2	16	53 5	20 6	17 3	after.	24	5 46	85
27	SUN	4 SUNDAY IN LENT.	51.1	51.1	51.1	14	50 5	22 6	25 3	21 1	15	5 17	86
28	M	Met. Meeting of Royal Geographical Society.	52.0	54.0	53.5	17	48 5	24 6	55 4	23 2	25	5 9	87
29	Tu		52.7	55.4	54.0	18	45 5	26 6	24 5	26 2	27	4 59	88
30	W	Royal Botanic Society's Spring Show opens.	53.7	54.3	54.0	19	43 5	28 6	19 5	42 4	28	4 32	89

From observations taken near London during the last forty-three years, the average day temperature of the week is 52.3°; and its night temperature 53.5°. The greatest heat was 75° on the 27th, 1850; and the lowest cold 11° on the 25th, 1850. The greatest fall of rain was 0.68 inch.

## PINE-APPLE CULTURE—LARGE VERSUS SMALL POTS.



WAS glad to again see Mr. Thomson's account (see page 123) of his experiment with large pots for Pine-culture. I have a distinct recollection of reading it before, and of boggling not a little at the seemingly paradoxical results therein stated, and trying to reconcile them with the laws which we are taught to believe regulate the size and weight of vegetable productions generally. There were the facts, however, guaranteed by the name of a cultivator on whose utterances we are accustomed to place the most implicit reliance. Well I know what the Pines at Archerfield were like, for my visits to their shrine at one time were neither few nor far between. Since then I have seen good examples of Pine-culture, not a few, in various parts of Great Britain, but I have not yet seen anything to match the Pines at Archerfield for size, uniformity, and general excellence at all times of the year, and if any man is entitled to speak with authority about their culture it is Mr. Thomson.

Nevertheless, I must venture to question the conclusions apparently involved in the result of his experiment, and I doubt not Mr. Thomson will bear with me in stating frankly my own convictions on the subject.

The argument conveyed in his statistical statement and supplementary remarks is, that within certain limits, small pots are better than large ones for Pines. Now I can quite understand that if we put a small sucker into a large pot, the result will be immature growth, and consequent failure; but suppose we have a sucker such as the experienced cultivator might judge capable of filling a 15-inch pot and maturing its growth in the given time, would Mr. Thomson suggest putting it into an 11-inch pot, and would he advise the practice generally? What we are left to infer from his statement is, that the superior weight of the fruit from the large pots was due, not to the extra size of the pots, but to the suckers being larger in the first instance—that is, the plants had been potted in 11-inch pots instead of 15-inch pots, the result would have been equally satisfactory. As the roots of the Pine are always in proportion to the size of the head, it is a legitimate inference, reasoning on the same principle, that if the plants in the 11-inch pots had been moved into 8-inch pots the results would also have been the same—a theory which, looked at as a theory, is manifestly untenable. It is a pity Mr. Thomson did not make the experiment with suckers of the same size, and it would be interesting to learn if, when he moved the eighteen finest plants into 15-inch pots, the less plants were shifted also, or allowed to make an uninterrupted growth in the 11-inch pots; in the latter case they would have an advantage in the race, for a Pine when shifted always receives a check, no matter how carefully the operation is performed.

Of course, I do not mean for a moment to cast the shadow of a doubt on the actual results of Mr. Thomson's experiment, but I think he hardly gives the large pots

their due share of credit in the matter. It is a reasonable practice, I think, to put the largest suckers in the largest pots, just as we would allow a man a larger share of food than a child. I have no desire to provoke more discussion on this subject, though, should these remarks induce Mr. Thomson to "come out" again, I shall consider your readers under obligations to me. I was, however, very much struck when I read Mr. Thomson's earlier account of his experiment, and since then I have watched attentively the results of similar experiments with Pines and other things, and I must acknowledge that my experience has been the opposite of his. I find that where two plants of the same size are put into pots of different sizes, the difference is not apparent at first, but when the small pot gets filled with roots, there comes a check which tells visibly in the final result. I have proved also, over and over again, that Strawberry runners of the same kind and size make better plants in 6-inch than they do in 5-inch pots, and bear decidedly the heavier crops, though they are not so certain of "showing" as the plants in the smaller pots, for which reason we prefer the latter. The same remarks are applicable to pot Vines and other subjects.

The heaviest Pines I ever saw or heard of were grown on the planting-out system; and do we not act on the principle all through of giving our plants the greatest amount of food we can compatibly with perfect maturation?

I do not advocate large pots for Pines myself. I use 12 and 14-inch pots for fruiting plants, never more nor less. Two inches are allowed for drainage and 2 inches for water—for I believe in ample waterings when watering is required—so that in a 14-inch pot the actual root-action is confined to a firmly-compressed ball of soil about 10 inches by 9, and proportionately less in a 12-inch pot.

Just a few words in conclusion about ripening Queens in fifteen months or less. Of the perfect feasibility of doing this I have no doubt, it is the results that would dissatisfy me; for I am afraid that from 3 to 4 lbs. fruit are more than we could expect as a rule from plants of that age. As I said before, however, the time cannot be reduced conveniently to less than eighteen months on the average, with those who wish to fruit two batches of Queens during the summer, and I fail to see at present that Mr. Thomson effected more than this. According to his statement, the suckers potted in June from his early summer lot of Queens produced fruit in August and September the following year; but where does he get the suckers from that ripen their fruit in May and June? I presume he has no Queen suckers fit to be detached in February or March, unless he fruits Queens at that period. He does not get them off the June lot; he must, therefore, take them off, and pot them in September, grow them all the next season, and fruit them the succeeding May and June, when they will be from twenty to twenty-two months old. These plants will then yield the suckers that fruit in fifteen months, and that will be two crops in thirty-seven months, giving an average of about eighteen months or more; for in a question of returns and expenses it is in this light we must view it. My object is to "realise"—to

see how we can reduce the plan to practice. Where Queens are preferred, and have to be hurried in by the beginning of summer, the time can only be abridged practically and systematically by fruiting the suckers detached at midsummer, the season following, from May to October, and, in my opinion, the returns gained in that time would not be satisfactory.—J. SIMMONS, *Wortley*.

### NOTES ON A FEW ROSES.

HAVING seen it repeatedly stated in this Journal that Paul Verdier is not a perpetual-blooming Rose, I will therefore tell what my Paul Verriers achieved during the past season.

I have three plants of the variety named, one on the Manetti stock and the other two on dwarf Briars. The Manetti-stocked plant proved strictly a summer Rose, having never made during the autumn the slightest attempt to bloom. The two budded on the Briar, however, bloomed very freely with me until the severe frost in October stopped them; in fact, these two plants of Paul Verdier budded on the Briar were amongst my best and freest-blooming autumnal Roses. I state this in the hope that some other amateurs may be able to corroborate my statement, as I should be sorry if it should happen that so fine and beautiful a Rose as that in question should be unnecessarily discarded.

I have to recommend a Rose which has, I fancy, somehow or other been too much neglected. That Rose is Kate Hausburg. It is of the Baronne Prevost type, being very large and very double, and of a most charming dark rose or light rose crimson shade of colour. It is now five or six years since this Rose was introduced; of course it may be better with me than it usually is, but I do not see any reason why it should be so, as there is nothing exceptionally suitable to the Rose in either our soil or climate. I recommend it to your readers; and if it succeeds as well with anyone who may take my advice as it has done with me, I feel sure that no one will ever regret having afforded it a place in his or her collection.

I have in my collection about 180 varieties, and of these the following are a few which gave me as much pleasure as any—viz., Marie Baumann, Duke of Wellington, Rushton Radclyffe, Fisher Holmes, Maurice Bernardin, Dr. Andry, and Horace Vernet, which were all splendid amongst the dark varieties. Charles Lefebvre, although hitherto occupying the first position, was last year not so good as usual. This variety is always a very ugly grower, but until last year it has never disappointed me with its blooms. Alfred Colomb, also, was not equal to what I expected from the glowing descriptions which I had read. Duke of Edinburgh was very good, but with me has so far proved rather a weak grower. Comte Litta is a beautiful Rose of the Duke of Edinburgh shade of colour. There is another, which, although occupying a high position amongst Roses, scarcely obtains so high a one as I think it deserves. The one I allude to is Madame Derieux Duvillie. It is really a gem, a light silvery rose colour, with a distinctly shaded edge of a lighter colour on each petal.

Two or three of the newer varieties have rather disappointed me. Engine Scribe, Napoleon III., and Black Prince do not seem to be equal to their descriptions. Perhaps in other localities, however, they may be better than they have been with me.—G. W. BOOTHBY.

### CORONILLA GLAUCA CULTURE.

A VERY simple and at the same time successful method of growing fair-sized useful specimens of this plant in a few months is the following:—

Secure cuttings in the first week in March; select young and stout short-jointed shoots about 2 inches long, trim them in the usual way, and place four cuttings round the side of a 4-inch pot that has been well drained. For soil use finely-sifted sandy loam; if the loam is not naturally sandy make it so by adding some fresh silver sand. Plunge the pots in a gentle bottom heat; the top heat must be mild, and not very moist.

When the cuttings are rooted, which will not be long, let each plant occupy a 3-inch pot, using a similar soil to that first employed, with the addition of a little leaf-mould. In shifting the plants, the advantage of only striking four plants in a pot will be twofold; for if care be taken to have the soil in a moist state, each plant may with ordinary care be separated with a good ball of earth, consequently the plants are not so likely to

fail after shifting as would otherwise be the case; their rooting in the fresh soil is also facilitated. Establish them in these pots in an intermediate temperature—bottom heat is not necessary, though it would assist them; then shift them into larger pots as required. Afterwards gradually harden them off to the temperature of a cold frame or pit, which is a more natural climate for these plants.

After the first few days in the cold frame, let them have air night and day if the weather will allow of it. Plenty of water at the root, and a sprinkling over the foliage after a hot day will assist them. In the meantime, prepare a piece of ground on a border with a southern aspect by trenching in a good quantity of rotten manure, mixing it with the soil to the depth of 30 inches. Should the soil be light, add one-half of heavier yet rich loam. I do not find that a light or poor soil grows this plant so well. If all has gone on well the plants may be planted out by the end of May at 30 inches apart each way. After planting water them well, and make the soil firm about their roots. Give the plants every encouragement during the summer by frequent waterings both at the roots and overhead, and by surface-stirring the soil; they will then increase in size very fast.

Although this plant generally assumes a compact habit of growth, yet from the first potting to the last in autumn a little attention to the shortening the shoots will be necessary, due regard being paid to the shape the plants are intended to take, which may be either that of a standard, pyramid, or bush, which last form is to be preferred for this mode of culture, as the intention is to grow as large a plant as possible in the shortest space of time, and the more matured shoots the plant makes the more flowers it produces.

I have now to make a few remarks on the time for taking up the plants and their after-treatment. The latter part of September is the time I choose for taking up, as I do not want the plants to flower before the following February; therefore, twice in August and once at the beginning of September I cut the roots with a spade, at a distance regulated by the size of the plant; but it must be borne in mind that the first cutting must be the nearest to the plant, and the others an inch farther off each time. The roots the plant has made in the intervals are thus secured at taking-up time. Before taking up the plants water them, and have the pots in readiness. For potting use similar soil to that from which the plants are taken; after potting they should be placed in a cold pit or frame, and kept close and shaded from sun, but at other times give them plenty of light. Water them well at the roots and round the pots, also over the foliage, and they will soon establish themselves. They may be kept in the pit or frame till Christmas, and then be placed in a little higher temperature with plenty of light; they will soon show flowers at the extremity of every little shoot, and will in a short time produce such a mass of blossom as will surprise even the most careless observer.—THOMAS RECORD.

### FLOWERS AND FLOWER SHOWS.

IN a recent paper in THE JOURNAL OF HORTICULTURE ON Floral Criticism (page 142), I referred to the setting-up of a false standard from within. It was also my intention there to challenge all devices practised with the view of meeting certain floral canons otherwise than by the exercise of horticultural skill. Such devices, which I have elsewhere combated under the heading of "Floricultural Millinery," are in my judgment false and deceptive, and lead to an incalculable amount of mischief. The late Dr. Lindley fought long and consistently against them, but they have been increasing since his day. "Dressing" is now more common, and carried further than ever; and I believe this is one cause of the loss of interest in, and diminution of attendance at, our flower shows.

Mr. A.—, who is fond of plants and flowers, and wishes to have the best of everything in his garden, goes to a flower show. He first encounters the Pelargoniums, and exclaims, "What huge trusses of flowers!" He selects and buys a certain number on account of their huge trusses, not knowing or thinking at the moment that the nature of the Pelargonium is to shed its early flowers before the late ones expand, and that the huge trusses are due to the retention of the early flowers by the artificial process of gumming. He arrives next at the cut Roses, and is equally struck, and again tempted, by their size, not knowing that in many cases a gorged plant has been allowed to produce only two or three flowers, all other buds—the beautiful buds!—having been removed in an incipient state. But

he is disappointed if he does not see in his own garden the following year *Pelargoniums* and *Roses* of equal size, and perhaps the capacity of his gardener is doubted. Could he but see the plants from which these "fat" *Roses* were cut, all bare and budless, the mystery would be explained, without taking into account the "handing" the flowers are often subjected to. Of other flowers, if it be autumn, the show-people stand in ecstasy over a group of *Dahlias*, unconsciously of the fact that this or that flower before him is made up of two or more individual flowers, and "dressed" with all the artistic skill of an accomplished milliner. I have seen *Hyacinths* shown for competition with small pins sticking the flowers close to the stems, and the drooping flowers of a loose truss brought to look you in the face by the flower-stalk being tied to the stem by an almost invisible ligature of fine green silk. Recently I saw some well-grown *Camellia* flowers with a military cravat placed under their chins, the shoots tied erect to a stiff stick, the shoots and flowers resembling a gun-barrel placed on end, with an egg stuck on the muzzle. I believe that the disavowal into which many of the old florists' flowers, as *Pinks*, *Carnations*, &c., have fallen is mainly due, 1st, to the artificial dressing which makes them appear other than they really are; and 2nd, to the breeders of novelties concentrating their attention on the flower only, to the utter neglect of the habit and constitution of the plant.

But it may be said that the raisers and growers are not the only men in fault here. They may plead that they are only following the law of supply and demand in producing what is sought after. They may turn round and tell you that they are obliged to meet the requirements of even a false public taste, and accuse the promoters of our flower shows of fostering and encouraging it. The main object of the latter has doubtless been to realise the greatest possible display, a gaudy show, heedless of the means by which it may be obtained, or the results by which it may be followed. No matter the constitution, and in some cases the habit of the plant, so that they get a "fat" sensational flower.

Thirty years ago and later, lovers of plants and flowers used more commonly to visit the nurseries. Later on they forsook the nurseries and took to the flower shows, where, note-book in hand, they selected the most bewitching examples, purchased them, but never saw them afterwards in their own gardens what they were at the flower shows. This proved a source of disappointment, and has doubtless led to what has become a fixed idea with some, that prize-growers keep all their best things for themselves. Certain it is that showing does not bring the business to the exhibitor that it used to do. Many purchasers would no more think of applying to a general prize-grower for their plants than they would to the exhibitor of a fat pig or sheep for their pork or mutton. Time works changes. Purchasers are now forsaking the flower shows and returning to the nurseries, where, among the million of subjects, the "dressing" above condemned is impossible. If they find the objects they seek in full dress they also find them in undress; they select their sorts, transfer them to their own gardens, where they subsequently realise all they expect of them. This is satisfactory, and on this sound basis gardening will prosper and endure. Men of taste and with a good knowledge of plants are now often heard to exclaim, "It is useless to judge of flowers by what you see at the flower shows. A good nursery, (and there are now plenty such), offers a truer test of quality, and affords more pleasure and instruction, than a good flower show."

To conclude. I doubt if any efforts of our horticultural societies can, for some time to come at least, render flower shows as popular as of old; but those of them which discourage the deceptive practices of "dressing" will do the most to encourage and perpetuate the true art of gardening.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, N.*

## HOPS AS MANURE FOR EARLY POTATOES IN CORNWALL.

I NOTICE in your last week's number some remarks by "T. M." on the use of hops as a manure for Potatoes. Spent hops are very heating and stimulating—too much so for Potato manure when used alone. I have frequently used them alone, but found that the young shoots were killed, or grew too rapidly and tenderly, so that they were blown off by the high winds, which we often have when the young tubers are forming.

I have every year for the last twenty years planted several

acres of early Potatoes, and have dug them up ripe some years as early as the first week in May, but usually commencing to do so about the 18th of that month. I use the whole of the spent hops from the brewery here, with other refuse, such as stale grains, old yeast, sediments from ale, &c. These I place in a pit with the stable liquid and manure, which all ferment together. The contents of the pit are drawn to the field in the autumn, and mixed with seaweed and sand in alternate layers. In winter the whole is well mixed together, and when required for use in the spring is strewn on the land when the Potato sets are drilled in.

The frost this year has delayed the planting, but the shoots of the early sorts are already peeping above ground. I find spent hops answer well for forcing Sea-kale.—E. S. P., *Penceance*.

## LETTUCES AND THEIR CULTIVATION.

(Continued from page 159.)

THE first week in April make a sowing of the different varieties of summer Lettuces on a south or west border, or in an open situation, but the weather being often stormy in April, a border is preferable. For the successional summer sowings an east border, from its being cooler than a west or south border, is desirable, and failing that, an open situation should be chosen both for sowing and planting. The first sowing of the summer kinds being made in the first week in April, to keep up a succession it will be necessary to sow every second or third week up to the middle of July. I find seven sowings are necessary, and at intervals of three weeks, the sowings being made as follows:—1, in the first week in April; 2, in the third week in April; 3, in the second week in May; 4, in the last week in May; 5, in the second week in June; 6, in the last week in June; and 7, in the second week in July.

The plants from all the sowings must be thinned out as soon as they can well be laid hold of between the finger and thumb. Thick sowing is bad; but to make sure of sufficient plants from each sowing, and to meet casualties from birds, slugs, and other vermin, tolerably thick sowing may be necessary. The plants should be thinned out by the time they show their rough leaves, so that they may be not less than from 1 to 1½ inch apart. Plants drawn up weak in the seed bed are apt to run to seed prematurely; they do not form large, close, solid heads, or hearts, nor do they transplant so well as those which from the first rough leaves have been grown far enough apart.

To insure the germination of the seed in dry weather, copious waterings of the seed-bed are necessary, and after the plants appear water will be needed in dry hot weather to keep up free growth. If, from drought, the plants become stunted in the seed-bed, they frequently do very indifferently when planted out.

When the plants have three or four rough leaves, and before they become crowded in the seed bed, they should be planted out. They will be fit to plant out in a month or six weeks after sowing. Each sowing will afford two plantings, a first planting of the strongest plants, and in ten days another planting may be made, so that the plantings-out will be twice as frequent as the sowings.

The ground cannot be too well and deeply dug, and for summer crops it cannot be too heavily manured. It is an excellent plan in light soils to take out trenches or spaces 4 feet wide, with 2-feet spaces between, removing the soil to the depth of 6 inches, and then give a 3-inch dressing of rotten manure and fork it in. After replacing the soil give another dressing of manure, and fork it in; the bed will then be in excellent condition for planting. Instead of rotten dung, fresh short manure may be used for the bottom, but in double the quantity, and it ought to be dug well in and mixed with the soil in the sunk space before replacing the surface soil. To encourage the rooting of the plants a dressing of old manure and leaf soil, or other decayed vegetable matter, should be applied to the surface, and neatly forked in before planting. Soils of better heart, as clays and strong loams, need not have the top soil taken out, but if deeply dug in the previous autumn they will only need to have the surface-dressing of manure, forking it in before planting. A supply of crisp juicy Lettuces cannot be expected unless the gardener has the requisite supply of manure. Deeply dug well-pluviered soil, plenty of manure, and a situation not shaded by walls or trees, are wanted for the growth of summer Lettuces. Kitchen gardens with fruit trees overshadowing the ground may be very agreeable promenades; for growing vegetables, and especially Lettuces, they are useless.

The ground being formed into 4-foot spaces or beds, with 2-foot spaces between, which are what I advise where the soil is light and dry, each bed will afford space for three rows of plants—namely, the outside rows 9 inches from each side of the bed, and then a centre row; the rows will therefore be 15 inches apart, and the plants may be 1 foot from each other in the rows. The wide space between the beds may seem a waste of ground, but I have not found it so, for on light soils frequent watering is required, and this cannot be done without space between the beds. More plants could of course be had in a much smaller space, but I consider one good Lettuce worth half a dozen small ones as to bulk, whilst for crispness, juiciness, and flavour there is no comparison of the two. In good ground it will suffice if the lines be 15 inches apart, and the plants 1 foot asunder in the rows, every fifth line being left out to afford facility for watering in dry weather.

Before taking up for planting a good watering should be given to the seed bed overnight if the weather be dry (and in Lettuce cultivation it will not do to wait for favourable planting weather), so that the plants will lift well, with abundance of fibres and soil adhering, and not with a rat-tail-like root; and every plant should be carefully lifted with a trowel, laid in a basket, and be covered from the sun. Plant with a trowel, and water at once, covering with mats or sticks arched over, if the weather be dry and hot, removing the covering at night. This covering should be continued until the plants recover the transplanting, and water must be given every evening. If the weather be cloudy and showery, of course the shading and watering will not be required. After the plants are again established copious waterings will be needed in dry weather, and the ground should be frequently stirred with a hoe, but not deeply, and not nearer the plants than the distance to which the leaves extend. When the plants are growing freely, and water is required, it is advantageous to afford liquid manure; 1 lb. of guano and 1 peck of soot to thirty gallons of water form an excellent liquid manure, which is also a good preventive of the aphid, which of late years has preyed so much on the roots of Lettuces.

Cabbage Lettuces, from the leaves turning-in, do not require blanching, but the Cos varieties, especially the Black-sealed Bath, require tying to have them well blanched. Tying greatly improves their appearance, flavour, and crispness. The plants should be tied up when grown to a good size, or from ten days to a fortnight before they are required for use. The tying should be done twice or thrice a week, when the plants are perfectly dry; the leaves must be drawn or gathered regularly together, and not too tightly, room being left for further growth; and with strips of matting put round a little above the thickest part, the leaves are held secure. The White Paris Cos and Ivory's Nonsuch, though kinds which do not require tying, are, nevertheless, better tied up, if only three or four days, or from that to a week, before cutting. The heads have a much better appearance, being held more compact, and are more convenient for package and carriage, being less liable to get bruised.

Sometimes Lettuces are required for cutting young—that is, when 2 or 3 inches high. Where such are in request, sowings of the early sorts as Wheeler's Tom Thumb, Hardy Green, Victoria, or, indeed, any of the green-leaved kinds, should be made rather thickly every week or ten days, in rows 3 inches apart. In summer the sowings should be made out of doors from April to September, but at other times they should be in heat, and shallow boxes are very suitable for sowing in. A temperature of from 50° to 55°, and light rich soil are the most desirable conditions to secure.—G. ARBY.

### IVY-LEAVED PELARGONIUM L'ÉLÉGANTE.

For general utility, ease of culture, and varied beauty of form and colour, the Zonal Pelargoniums are unrivalled, and their usefulness is not confined to the production of a mere summer display, as many varieties are most attractive when grown in pots for house decoration, some of them flowering as freely in winter as in the brighter months of the year, while others produce an equally beautiful effect by their foliage, and require very little care to render them most useful and effective conservatory plants throughout the year.

Amongst other Pelargoniums, the silver-margined Ivy-leaved variety L'Élégante is one of the most useful; if planted in the flower garden as an edging or front row its appearance is dull and heavy, but if grown as a specimen pot plant, and trained to a suitable trellis, it becomes a chaste and attractive object.

Its rambling nature adds to its usefulness, for in addition to the ease with which it may be formed into a pretty pot plant, it also answers admirably for covering the pillars or the back wall of a conservatory. It is seen in one of its most attractive forms when trained as a cone or pyramid.

Selecting for this purpose a vigorous plant in an 8-inch pot, the formation of a skeleton cone or trellis bearing a suitable proportion to the size of the pot, and of materials in which lightness, strength, and durability are best combined, becomes an important consideration. Hazel rods are frequently used, but these, while answering very well, are not to be depended on for a longer period than one season, and therefore for L'Élégante and plants of a similar character materials of a more lasting nature are requisite. A trellis combining all the above qualities is formed by taking for the centre rod a piece of cylindrical iron rod one-fourth of an inch in diameter, and 2 feet 8 inches long, pointed at one end, and with two holes punched through it, one above the other, close to the other end. The pointed end is inserted 6 inches deep in the soil at the centre of the pot. Three pieces of the same kind of iron rod, each 20 inches long, are next required, and a small hole is drilled through both ends; these are to form the base of the cone, which is done by crossing them over each other on the top of the pot, to which they are firmly secured by pieces of fine wire passed round them on each side close to the rim, and fastened to another wire under the rim. Care is required to have the six ends of the rods at equal distances all round the pot. Then from three ends a fine galvanised wire is carried through the holes in the top of the centre rod, strained tightly, and fastened to the opposite ends of the base rods, and the trellis is complete. Fine galvanised wire is peculiarly suitable for this purpose, its neutral colour rendering it almost invisible amongst the foliage.

The only want in L'Élégante to render it a perfect gem in pots is flowers of a lively pink colour, in place of its white ones; beautiful as it now is, it would then become a plant of such rare loveliness that no collector, however choice, would be thought complete without it. Of course I mean something better than the paltry flowers of Mangiest—a compact little trusses of well-shaped, medium-sized flowers, with the flower stalks just long enough to bear the trusses clear of the foliage, the elegance of which would then be very much enhanced.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

### THE CHRYSANTHEMUM AS A DECORATIVE PLANT.

WHEN I was at the Chrysanthemum Exhibition at Liverpool, in November last—and it was such an exhibition of Chrysanthemums as perhaps can only be seen in Liverpool now-a-days—I could not help thinking, as I looked on the great, flat, symmetrical plants staged as specimens, that there was something very unnatural about the mode in which they were trained. On three sides of the immense Hall were seen tier above tier these plants, looking like lines of floricultural pies, and entirely destitute of natural grace or elegance. That fine old Chrysanthemum-grower, the late Mr. Samuel Broome, of the Temple Gardens, was there in the capacity of judge, and even he was obliged to admit that the plants were much too formal in appearance. What a task it must have been to have brought one of these great plants to this shape; what twisting and torturing processes must have been gone through with the poor plant, what incessant tyings, and all for the purpose of producing a most unnatural floral deformity. For conservatory or greenhouse decoration they would be next to useless when trained in such a shape, for how could they be grouped with other plants so as to secure an effective floral spectacle? I think there is no Chrysanthemum exhibition half so enjoyable as the show of this fine flower Messrs. Salter & Son annually make at Hammersmith, in the autumn months. There none uncouth, unpliant-like examples offend the taste; but plants grown in the form the Chrysanthemum naturally assumes are seen ranged in banks, giving a mass of colour of various hues, pleasantly and even artistically blended, with the valuable addition of the finest flowers that can well be produced. Grown in this way the very best varieties can be employed for the purpose; but when trained according to the process now in vogue at Chrysanthemum exhibitions, only certain of the free-blooming, flat-petaled, or reflexed-flowering varieties can be so used.

At the meeting of the Royal Horticultural Society, held in November last, prizes were offered for six Chrysanthemums in

pots, and three collections were produced, two of them comprising plants trained to wire skeletons, the other grown in the way Messrs. Salter & Son cultivate their plants, and each plant had from eight to twelve splendidly incurved flowers. To these the first prize was rightly awarded, not without a protest from some wedded to the flat circular style of training. The plants which received the first prize were exhibited by Mr. J. James, gardener to W. F. Watson, Esq., of Isleworth, who is also well known as a successful cultivator of the *Auricula*, *Pansy*, and *Calceolaria*, besides other flowers equally well known.

Visiting Mr. James a few days afterwards, I saw such a collection of *Chrysanthemums* as fairly held me in surprise as I looked upon them. The conservatory, a handsome and airy building, with a large sloping stage at the back, was filled with *Chrysanthemums*, all grown similarly to those shown by Mr. James at the meeting referred to, and laden with really magnificent blooms of great size, and so full as to be very finely incurved. There was also a bank of plants along the front of the conservatory, but standing on the handsome floor of ornamental tiles; so the visitor walked along a floral avenue of uncommon occurrence. There were in the conservatory about 260 plants in pots, the great majority in 11-inch pots, with Pompon *Chrysanthemums* in 8-inch pots, to form front rows to the banks.

I prompted the flowers, as far as I could, in divisions of colours, with the following result:—

Of crimson shades, the most desirable were Albion, very finely incurved; Julie Lagravère, rich bright crimson, a reflexed flower, but it should be in every collection; Progrès; Prince Albert, large and fine, a reflexed flower, but not so showy as Julie Lagravère; Sam Slick, ruby red, slightly reflexed, but very good; Sanguinetta, bright reddish crimson, very fine; and Dr. Sharpe, pale crimson, very large. The foregoing formed a really very fine group of dark flowers.

Of lilac and rose shades, the following were well deserving of notice:—Alma, very fine, though rather rough, but coming finely incurved; Fingal, very fine indeed; Lady Talford, pale pinkish lilac; Venus, very fine; Osean; Prince of Wales, very fine; Cardington, finely reflexed; Lady Slade, very fine; Lady Harding, a grand flower; Léon Lévy, silvery lilac, very pretty; Princess Marie; Princess of Wales, delicate rose lilac; very fine; Hebe, bluish, almost white; a late-blooming variety; Princess of Teck, which opens pure white, but changes to a delicate bluish tint, very fine, one of the best; and Little Pet, pale bluish, very pretty, small in size, but remarkably good.

The bronze section, as it is termed, furnishes not only some very fine flowers, but considerable variation in point of colour, as it gives reddish bronze, orange, cinnamon, and reddish buff hues. The following varieties were the most striking:—John Salter, reddish cinnamon, with orange centre, very fine; Abbé Passaglia, yellowish amber, very fine; Dupont de l'Eure; General Slade, very fine; Antonelli, salmon orange, very fine; Golden Eagle, Indian red and orange, very fine; Lord Ranelagh, pale reddish orange, very fine; Garibaldi; General Bainbridge, dark amber, with golden centre, very fine; Sir Stafford Carey, very fine; Prometheus, very fine; Robert James, very fine; Cherub, golden amber, almost yellow; Little Harry, bright golden amber, very good; and Josiah Wedgwood, bright bronzed carmine, lively, and very fine.

Of the yellow and golden series, some are remarkably fine. There are, for instance, Gloria Mundi, deep gold, very fine; Yellow Perfection; Guernsey Nugget, clear primrose yellow; Cloth of Gold, very fine, and Queen of England, also very fine, of great size, and among the earliest to bloom. The finest of all the yellows to my mind is Jardin des Plantes.

Then white flowers:—Empress of India, of great size, and very fine; Beverley, a very early-blooming variety, that carries its flowers well; Mrs. George Rundle, very fine; Mrs. Heale, a fine flower, but it does not close well in the centre; Mrs. Halibarton, fine; Queen of England, very large and fine; and Virgin Queen, probably the purest white flower.

The following among the Anemone-flowered large-flowering varieties should be in every collection:—Fleur de Marie, pure white; and Prince of Anemones, lilac bluish, large and fine.

Of the Pompon kinds Mr. James cultivates a few to give him a kind of margin to his stage, and they occupied the lowest shelf. The following are very good:—Mlle. Martie, pure white; Mrs. Dix, bluish bordered with rose; Hébé, rosy lilac; Rose Trevanna, rosy bluish, very good; Anacole, reddish cinnamon; and Aigle d'Or, canary yellow.

Of the Anemone-flowered varieties of the Pompon section, the following are good:—Madame Montels, white, with yellow

centre; Cedo Nulli, white, with brown points; and Golden Cedo Nulli.

The value of the new Japanese varieties of the *Chrysanthemum* as decorative agents, was here excellently illustrated, as here and there Mr. James had introduced a plant with the curious flower-heads so characteristic of this race, with the best results. The following kinds are well worthy of notice:—The Dragon, Red Dragon, The Daimio, and Nagasaki Violet, fine and distinct.

The very earliest of the large-flowering varieties to bloom were Beverley, Mrs. George Rundle, Prince of Wales, Queen of England, Golden Queen of England, Gloria Mundi, Prince Albert, Alma, and Princesse Marie.

In height the plants ranged from 3½ to 5 feet, and had been raised from cuttings struck last year in January, the year in which they bloomed; but another time Mr. James will strike his cuttings a month later, in order to get the plants rather dwarfer. They are struck in pans, or in a bed in a stove, and when sufficiently rooted are potted into 3-inch, and then shifted into 6-inch pots. This is a rather large shift, but it gives the plants plenty of root room when they most require it. When they take hold of the new soil the plants are set out of doors, and Mr. James stated they appear to do best in the full sun. They are abundantly watered, and when the plants begin to throw out their buds, plenty of manure water is given. Disbudding is done as soon as the buds are large enough to be removed, and one shoot is allowed to carry only two or three, but mostly two, flowers. The large-flowering varieties are not stopped at any time. Towards the blooming time, when the buds are nearly ready to expand, the plants are removed to the conservatory, and arranged as described.

Such a collection as Mr. James grows remains in bloom about three months. When the plants have done blooming they are cut down, set in a cold frame till sufficient cuttings are obtained, and then thrown away. Probably no soil suits the *Chrysanthemum* so well as a good yellow loam, with which should be mixed plenty of thoroughly decayed manure and leaf soil, using some sand for the first shift.

How to make, and then how to use manure water, are things not always clear to amateur cultivators. Mr. James obtains his by putting some cow and pigeon dung in a tank and pouring water over it. According to its strength, so is it diluted with fresh water. I asked Mr. James if he could lay down anything like a rule as to the strength in which it should be applied. His tank was filled with an almost black fluid, and he stated that he used it for his *Chrysanthemums* in that state in which, if a pan 2 inches deep were filled with it, the bottom could be seen, but then his mixture was a very strong one. The manure water is not applied after the plants are removed to the conservatory. There is no reason why it should not be applied, but in a handsome conservatory the floor is apt to become stained, besides which the effluvia are not pleasant, especially if the temperature of the house should become heightened by the sun shining.

The main points to be regarded by those who would produce such flowers as those Mr. James obtains from his plants, are disbudding and feeding with manure water. If by the former process the number of flowers borne by the plant becomes materially reduced, there are yet obtained magnificently developed flowers, full, of large size, and finely incurved. Supposing one of the plants 5 feet in height carries from twelve to fifteen blooms, they, because of their fine development, form a splendid floral display, which more than counterbalances the loss in number by the process of disbudding. In regard to feeding, according to Mr. James's testimony, the time to do this is when the buds are forming, and until they are ready to expand. It is then the foundation for massive, well-colored flowers is obtained, and those who would see what can be done by this process should endeavor to pay Mr. James a visit during the month of November.—VIA.

COLOURING OF GRAPES.—At the annual meeting of the Western New York Grape-growers, an experiment was described by the President which fully proves that the Grape does not need light upon the fruit in order to ripen. A gentleman enclosed a bunch while the fruit was of the size of blackshot, and quite green, so as to be in complete darkness, and it ripened and colored perfectly. Ye advocates for summer defoliation, for cutting off the leaves so as to let the sunlight in upon the fruit, what excuse have you now for your harmful practice? Did you ever see a wild Grape Vine that had

covered some tree top, and count its purple clusters hanging in the deepest shade, where no straggling sunbeam ever had leave to enter? And did you never notice, after your summer's leaf-stripping, that the fruit you expose to the full glare of the sun never would colour perfectly, no, nor ripen perfectly either?

### THE CHISWICK GARDEN OF THE ROYAL HORTICULTURAL SOCIETY.

It has been at last determined that the Chiswick garden of the Royal Horticultural Society is to be preserved, at least such a portion of it as will enable the Society to continue its useful work in the way of experimental horticulture. Now that there is at Kensington all that can be desired to please the senses, it is not so important that those portions of Chiswick which are of a purely ornamental and dilettanti character should be retained, but that a purely experimental garden be kept to test novelties, of whatever kind, as they are presented in practical horticulture. The present garden consists of thirty acres, which are variously occupied. There is the arboretum and the broad belt surrounding the garden, lately termed "The Wilderness," besides the "knot in a flower pot," playfully called "California," which was intended as a specimen of landscape gardening; all these are given up to ornamental trees and shrubs. Then there are the three other portions, variously used as orchard, kitchen garden, and glass departments.

At one period—the time when the garden was made, and the Society began its work of usefulness—the practice of horticulture was in a dormant, if not a stagnant state. Kew in those days was a place for the mere keeping of collections of plants, and not for their culture; and the skilled art in the growing of exotics, as it is now familiar to us, was wholly unknown. The knowledge that existed respecting fruits and fruit trees before the Society took that subject in hand, was of the most meagre and erroneous description; and the opportunity for publicly proving and improving the merits of garden structures and appliances did not exist. There was then a pressing need for such a public garden, and room for so extensive an enterprise; but time has worked changes in that direction, as in all others, and it cannot be said that there is the same necessity for a society of private individuals doing now that which is done far better by a public department. The Kew Garden of to-day is as far in advance of the Kew Garden of forty years ago, as the Great Britain of Queen Victoria exceeds the Less Britain of George the Third. In collections and in culture no private establishment could rival the former or excel the latter as they are at present found in the national establishment, and therefore the Society need not now burden its finances with endeavouring to do what can be done so much better within a few minutes' distance of its own gates.

Looking at the matter from this point of view, the Council have wisely determined to reduce the present area of the garden to limits adapted to the present altered condition of horticulture. They have decided to abandon every part of the ground which is now given up to purely ornamental gardening, and to reserve a space of ten acres for an experimental garden only. The space which is to be retained will be bounded on the east by a line running north and south, about 150 yards to the east of the council room, and extending from the conservative wall to the north wall of the orchard; thereby taking in the council room, the large conservatory, and the fruit room. On the south the boundary will run westward in a straight line from the end of the north wall of the orchard, cutting the kitchen garden and "California" in half, and terminating at the present western boundary. The present western and northern boundaries will be left undisturbed, so that the whole of the glass houses will remain untouched. The old orchard will be given up, but precautions had already been taken to meet such an eventuality, and all the varieties of fruits which there existed were propagated, and young trees of every sort worth retaining have been secured on dwarfing stocks, so that while the collection will not suffer from reduction, the space occupied will be very much less. Worthless varieties, and such trees as have been proved to be synonymous with others, will of course be discarded; and the collections of fruit trees will henceforth be grown as pyramids and bushes, instead of in the large standard orchard forms as they were originally. All spaces occupied by objects, whether trees or buildings, that can easily be dispensed with will be cleared, and the ground employed more profitably. In this way the extent of ten acres which has been secured will be simply sufficient

for all the purposes of an experimental garden, and will enable the Society to prosecute for many a day its wonted career of usefulness unimpaired, especially as the renewal of the lease for fifty years will ensure a strong incentive to vigorous action.

By this reduction a large annual expenditure will be saved to the Society, an expenditure amounting to not less than a thousand a-year. At present the rent is £200 a-year, or at the rate of £10 an acre. There is every reason to believe that at least £200 a-year will be saved on this alone, as it is supposed that the Duke of Devonshire, who, like all the members of that noble house, has always been distinguished as a patron of arts, science, and industry, will only require a rental *pro rata* on that of the original lease, or £100 a-year. Rates and taxes will of course be proportionally reduced. The labour, which forms a very great item in all large gardening establishments, will amount to very much less than heretofore, particularly as the cultivation of house plants will be confined to those which are either profitable—as Vines and other fruit trees—or those which are new introductions, or are required for distribution among the Fellows.

It is evident, therefore, that the change the Council has determined upon is a beneficial one; and while it will be productive of a great saving to the Society, it will in no way detract from its usefulness.

There are some who have for a long series of years known the old garden, and have associated with it many pleasant memories, to whom this announcement of its dismemberment will be read with regret. It is but natural it should be so; but when circumstances are so that the old conditions cannot be preserved without serious injury to the Society, it is judgment and not sentiment that must govern.

### MANURES—SOLID—No. 1.

BEFORE applying manures to any soil it is necessary to ascertain that soil's nature—if it is light or heavy, if its texture is close or open, if it is thoroughly drained, if it is to be stirred deeply—in a word to thoroughly examine it, so that any defect likely to affect the health or vigour of the crop for which it is in preparation may at once be remedied.

One of the most important points to be observed is deep culture. A person with whom I am well acquainted, on taking charge of a garden which had been badly managed, seeing the weak growth of the whole of the vegetables, at once asked for the workmen's tools; when they were brought he at once saw what was the matter, for the whole of them were old and worn, and on removing a few inches of the soil he came upon earth that probably had not been stirred for many years, a close compact mass, retaining a superabundance of moisture, and almost impervious to the action of the air. Without going into the whole subject of drainage and deep culture, it will be well to inquire here what are the evils attendant upon this shallow culture of the soil?

It is a well-established fact that an inert subsoil saturated with water is always of a lower temperature than that which is drained of its superabundant moisture, nor can it be at all difficult to understand this, if it is remembered that water at rest is a very bad conductor of heat, and therefore, when the warm rays of the summer's sun have penetrated through the shallow soil, they can impart very little warmth to a subsoil containing such an excess of moisture. But the evil would not end here, for the constant evaporation going on would also lower the temperature of the surface, and thus have a detrimental effect on the growing crops. And if vegetables rooting only in the shallow surface soil are affected, fruit trees, the roots of which have force enough to penetrate into the subsoil itself, must suffer in a much greater degree, the evidences of which would be visible in the Lichen-covered stem, the stunted growth, the decaying branches, and the half-grown fruit falling. The remedy for these evils is simple and effective; the land must be thoroughly drained, and broken up to a depth of 18 inches or 2 feet, and if it be thrown up in high ridges so much the better, as it will be more exposed to the action of the air and become thoroughly mellowed and sweetened by the combined action of rain, wind, and frost. Moreover, as all soils contain inorganic matters, which remain neutral till acted upon by air, these, when set free by the air, and rendered soluble by water, become in the highest degree beneficial to vegetation; and consequently soil treated as above, with, after it has been exposed to the air, the addition of organic manure in proportion to the requirements of the intended crop, may fairly be calculated to afford the best results. This brings us to the consideration of the

kinds of manures generally placed at the gardener's disposal, and the right method for their preparation and application to the soil.

Generally speaking, the manures for a garden are obtained from the stable, the piggery, and the cowyard. The organic manures contain chemical constituents which must be carefully guarded. When a heap of manure is in a state of fermentation or decay, it should be covered with some such material as earth or charcoal, to absorb and retain the ammonia which would otherwise be lost; a covering of earth answers very well, but if fine charcoal can be had it is far preferable, from its greater power of retaining these gases so beneficial to vegetation, and which are the quintessence of a manure heap. Charcoal even alone is a valuable fertiliser, but when it has become charged with ammonia it forms one of the best agents for the renovation of fruit-tree borders and plantations. If a heap so covered ceases to exhale effluvia, it may safely be concluded that it retains within itself all those constituents by which the soil will be benefited. The importance of this principle is far from being so fully recognised as it ought to be. Large quantities of rich manure brought from the farmyard or fattening pound, may frequently be seen heaped on some piece of waste land by the roadside, where it is fully exposed, its powerful gases constantly escaping, and its rich juices, washed out of it by every passing shower, trickling down the road. Thus the richest elements of the heap are wasted and lost. Such sights as this, and they are by no means uncommon, cause one to think that there is some truth in the adage that "a little knowledge is a dangerous thing;" for this heaping and mixing of manure in order to promote fermentation and decay is sensible and right, because the more manure is decayed when applied to the land the sooner will it become soluble and fit for the food of plants; but it is in the too frequent exposure to the air for a lengthened period, especially during fermentation (by which process ammonia is developed), and by the washing away of the soluble matter by rain, that error is committed. Yet, although this faulty mode of procedure is bad enough, it becomes far worse if the heap is turned during fermentation, because the gases then generated are partly absorbed and fixed by the cool external layers, and if, after those gases become fixed, the outer layers are turned to the bottom and centre of the heap, the gases would again be set free and the greater part of them lost.

The degree of decay to which it is desirable that manure should be brought before it is used, depends upon the condition of the soil for which it is in preparation. To a damp heavy loam it is best to apply the manure in as rough a state as possible, as every straw would serve for a time to keep the soil open and admit air; but in almost every other case, manure in an advanced state of decay is the most valuable. Horse dung, by its stimulating quality, is best adapted to cold clayey soils, while cow dung, from its colder nature, is admirably suited to hot sandy soils. Pig's dung is considered the most powerful stimulant of the three; but whatever kind is used, it is of equal importance that it be thoroughly incorporated with the soil, so that its nourishing constituents may be as equally distributed as possible.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

## THE CHEMISTRY OF MANURES.—No. 2.

In pursuing the subject of the value of nitrogen in manures, we must bear in mind that all the constituents of a plant have to be assimilated in a state of solution. It would be of just as much use to put an infant into the middle of a yard filled with stacks of wheat, and to tell it to feed itself, as there was plenty of material in the stacks to make bread of, as to put a plant into the middle of dry straw and expect it to grow. There may be all the materials necessary for the existence of the plant in the straw; and, moreover, having been already once assimilated, all the inorganic constituents would be in the best possible form to be again up into the tissues of a plant, but the straw will be of no use till it be thoroughly decomposed, and all its particles again rendered soluble.

The principal constituents of the humus to be found in all our cultivated soils are nearly all of them soluble in ammonia, and this is one of the most valuable of the properties of ammonia. Humus is formed by the decay of animal or vegetable matter; thus, all farmyard manure before it is capable of being absorbed or assimilated into a plant must first take the form of humus. The composition of this humus is very variable, and has been divided into three groups. The first is the

humic acid group, which consists of acids formed from carbon and water only.

	Carbon.	Hydrogen.	Oxygen.
Thus humic acid from the soil			
of a pasture field .....	40	14	14
From hard peat .....	40	15	15
From soil .....	40	16	16

all of which are formed of carbon in combination with a variable proportion of water. The second, the ulmic acid group, consists of carbon and water with a variable proportion of excess of hydrogen. The third, the geic acid group, consists of carbon and water with a variable excess of oxygen.

Now, in all these soils of vegetable or animal origin, part is soluble in water, part in alkaline solutions, and part, which is called humin or ulmin, is insoluble. Of these three groups which I have alluded to, the geic acid group, which contains an excess of oxygen, is the most soluble in water. The other two groups, the humic and ulmic acid groups, are less so.

It would take up too much of your space and of your readers' time to enter more fully into the details with regard to the humus of soil, and I would refer those of your readers who wish to study the subject for themselves to the chapter devoted to it in Johnston's "Agricultural Chemistry," pages 69 to 78, &c. I have, however, referred to it because I think ammonia is far more valuable, in the first instance, for the property it possesses of dissolving these different acids, and enabling the sap to take them up, rather than for the nitrogen it contains. It is also, I think, important to note that these different acids, which form part of the vegetable constituents of the soil, are very closely allied to the hydro-carbons found in plants, as gum, sugar, starch, dextrine, &c., all of which, as I pointed out in my last, are formed from carbon with variable proportions of water. Thus humic acid, by the addition of more water, would become starch or gum sugar, just as it may be elaborated in the plant. How these different chemical changes take place in the great laboratory of nature is as yet but little known, and is only a matter of conjecture; but when we find in the earth in which plants grow, different substances which are already formed from decomposed vegetable matter, and are so nearly allied to other substances found in the living plant, it is only fair to argue by analogy that the plant can assimilate these substances more readily than others that are less nearly allied. Now, the acids of these groups—the ulmic, geic, and humic acids—are all of them capable of being dissolved by alkalis, especially by ammonia, and it is only the geic acid group, which contain an excess of oxygen, which are easily dissolved in water without the aid of some solvent.

It may be stated as a broad rule that nearly half the weight of plants consists of carbon, which it is very fairly concluded is the most important ingredient in all vegetables; and though plants have the power of assimilating carbon from the atmosphere by means of their leaves, yet a great proportion of the carbon must be elaborated by means of their roots. Liebig lays down a broad rule, that plants take up carbon from the soil in the earlier stages of their growth, but not in the later; but I look upon this as just about as valuable as his broad statement that there is no reason whatever to suppose that plants can assimilate nitrogen from the air. It is too absurd to say that plants can take the carbon which is necessary to their existence from the soil while they are young, but that the power should cease when they get matured, especially, as is well shown by Professor Johnston, plants must absorb much more moisture through their roots during the heat of summer than at any other time, and the leaves in presence of the sun have much more power to elaborate the carbon than at any other time. But not only does the ammonia help to support the carbon by acting as a solvent to these different acids found in humus, but ammonia is also formed by the further decay of vegetable soils. Professor Johnston says, page 76, cap. 3—"They have all a strong tendency to combine with ammonia. Hence when extracted from the soil they are almost universally found to contain a quantity of this important compound. When prepared in a perfectly pure state, and exposed to the air, they are soon found to contain traces of ammonia. This ammonia is not merely extracted from the air; it is actually formed either in whole or in part, by the mutual action of these acids and of the constituents of the atmosphere to which they are exposed. The ammonia they are thus the instruments of producing is one of the agents by which the acids themselves are rendered soluble in water, and thus fitted to become the food of plants." Again, cap. 5—"The soluble compounds which these acids form with potash, soda, or ammonia, possess the property of dissolving small quantities of the earthy substances

above mentioned." This property, therefore, of ammonia must, I consider, be more important than that of supplying the plant with nitrogen.

There is also another very valuable property in ammonia, and that is that it supplies the plant with hydrogen. This property is much overlooked, because many persons argue that as there is so much hydrogen in water, which forms so great a bulk by weight in any plant, the plant can obtain as much hydrogen as it requires from that. Moreover, most agricultural chemists state that water is easily decomposed by plants, and then the elements are re-arranged to form water. I cannot see any proof or any strong grounds on which this statement rests. Water, as is well known, is the product of the combustion of hydrogen in oxygen, and when once formed is one of the most stable and most neutral ingredients known. It is this property which makes it so valuable to analytical chemists; it has the power of holding so many different substances in solution without chemically altering their nature, and when the water is evaporated the substances remain the same as before. It has, however, the power of combining as a base with many substances. Thus, if a solution of sulphuric acid and water is distilled, the water is given off first in the shape of steam, but after a time sulphuric acid distils over with the steam, and it is found impossible to separate any more water from the acid. This portion of water which combines with the acid is called a base, and the substances so formed are called hydrates; but in all these cases the proportion of hydrogen to oxygen remains unchanged. A strong instance of this may again be pointed out in those very substances which I have before alluded to—gum, sugar, starch, mangel, &c., and the humic acid group, all of which may be considered as hydrates of carbon, as the relative proportions of hydrogen and oxygen found in them are the same as in water. It is only by powerful chemical means that the hydrogen is separated from the oxygen. Thus, if the two platinum plates are dipped in water and connected together by the wires of a strong electric battery, bubbles of gas will be seen to rise from each of the platinum plates. If these are collected by means of glass receivers, one of the gases will be found to be hydrogen, the other oxygen. Or, again, hydrogen may be separated from water by the action of nitric or sulphuric acid upon zinc in water. Water is, however, by no means easily decomposed, although it helps to decompose vegetable substances as soon as they are deprived of life; but I cannot see any proof that those compounds which contain an excess of hydrogen in plants, can easily obtain what they require from water.

To refer, however, once more to the analyses of different vegetable substances which I mentioned in my last paper, as Wheat, both grain and straw, hay, Turnips, &c., after all free water has been expelled, by drying at a heat of 212°, there remains an excess of hydrogen, generally from 5 to 6 per cent. of the weight of the plant, and as hydrogen is the lightest known substance, it is considerably greater in bulk. This hydrogen is one of the ingredients supplied to the plant by ammonia, because as all compounds of nitrogen are easily decomposed, the hydrogen from ammonia ( $NH_3$ ), is freely given off. Hydrogen has been found by experiment to be one of the most important ingredients in the colouring matter of leaves, and it is most probably this property in ammonia which helps to impart the dark, rich green colour to growing crops that are watered with liquids containing ammonia in solution. It not only, that is to say, enables the plant to grow more quickly by acting as a solvent to the vegetable constituents of the soil, but it supplies it also with the hydrogen which is always found in growing crops.

Ammonia is generally found in the form of carbonate of ammonia, as it readily combines with carbonic acid; and whether the ammonia arises from the decomposition of vegetable or animal matter, carbonic acid, with which it unites, is almost always given off at the same time. Carbonate of ammonia is almost always found in rain water. Liebig attributes this to the evaporation of ammonia from decomposing organic matters which rises into the air, and is then brought down in solution by the rain; but independently of the fact that there is so slight a portion of ammonia present in the air that it is almost impossible to trace it, he overlooks one way in which carbonate of ammonia may easily be generated in the clouds, because the different substances of which it is formed are all present in the cloud, and there is also an amount of electrical action, which is always favourable to the formation of such compounds. Thus we have aqueous vapour, which contains the hydrogen, carbonic acid, and nitrogen, all in a finely sub-

divided state, and intimately mixed together in the upper strata of the air; and as the rain which falls contains carbonate of ammonia, it is only fair to infer that small portions of ammonia may be formed in this way by the action of electricity in the clouds; and as the softness and solvent power of soft water are due greatly to its ammonia, it may be that these important properties are derived directly from the clouds themselves. It is a pretty generally received opinion that the traces of nitric acid ( $N_2O_5$ ), which are found in the atmosphere, are formed by the union of one part of nitrogen to five of oxygen by means of lightning, because nitric acid has been experimentally formed by the same means, by passing electric flashes through a jar filled with air.

I have already alluded, in my last paper, to the property of nitrate of soda, in increasing the straw by acting as a solvent to the silicon; I need not, therefore, add more to the argument I there adduced to prove that nitrate of soda was more valuable as a manure by its increasing the bulk of the straw than for adding nitrogen to the grain, especially as it is generally found that, though nitrate of soda may increase the bulk, it does not improve the quality of the grain. Moreover, in estimating the value of nitrogen in the grain of Wheat, there is more in the husk or bran than in the flour, and those grains which are most rich in nitrogen are generally coarser in the husk.

To sum up, then, in a few words: Until I can have some proofs brought forward to the contrary, I believe that nitrogenous manures are valuable, not because of the nitrogen they contain, but because they are of themselves more easily decomposed, and also (which is a point I have not hitherto entered upon) they are generally of a complex form, and contain a great number of different saline and other ingredients necessary to the welfare of plants. Take, for instance, guano, which contains, besides ammonia, phosphate of lime, phosphate of soda, and phosphoric acid. Next, I believe, that plants can absorb from the atmosphere whatever nitrogen they may require, but that in most plants it is so small that it still deserves the name which chemists originally gave it, of azote, or a non-supporter of life, and that it is quite contrary to the usual ways of Providence to put a plant in a medium necessary for its existence, and yet forbid it the power of assimilating it for its own use. And I conclude by saying I think the reason why a fictitious value has been given to nitrogen is, because ammonia, a compound of nitrogen, has always been found of such value in manures, but that the real value of ammonia is owing to its being a solvent for the organic compounds for the soil, and also for the hydrogen which it supplies; it is also valuable as combining with other mineral ingredients of the soil, and presenting them in a soluble form to the roots through the sap; and that this property is far more valuable than the property it may possess of supplying nitrogen. I can hardly expect, perhaps, to convince others; I only wish to be convinced myself that I am wrong, and shall be very glad if any persons who are more conversant with the subject than I am will show where my arguments fail. I may be told I have not reflected enough; but I have not put these opinions of my own forward without looking over carefully all the proofs which Liebig and Johnston bring forward of the value of nitrogen, and cannot but think that the value of nitrogen has been immensely exaggerated, and that this supposed value of nitrogen began from the broad and direct assertion of Liebig, which he afterwards argued from as an established fact.—C. P. PEACH.

## THE DIFFUSION OF PLANTS.

In the new periodical, *Nature*, it is stated that Professor Delpino, of Florence, has published some interesting researches on the relation between the diffusion of plants and animals. The life of every plant has three principal objects: its nourishment, its reproduction, and the destruction of its seeds; for each of these three objects special biological conditions being requisite. The fertilisation of many plants can be effected only by some particular animal; as *Arum italicum*, *Aristolochia*, and *Asarum*, by gnats; the Fig tree by different species of *Cynips* (or gall fly); *Arum Dracunculæ*, *S. aspera*, and *Rafflesia*, by blue-bottle flies; many others by different kinds of flies or bee-like insects (Hymenoptera), and some even by small birds belonging to the family of Trochilidae, or humming birds; *Rosa*, *Pæonia*, and *Magnolia grandiflora*, by beetles of the chafer tribe; others again by small slugs. In any particular locality the animal necessary for the fertilisation of a particular

plant is absent, it is certain that the plant cannot spread; and thus the conditions for the diffusion of plants are dependent on the geographical distribution of animals. A remarkable illustration is furnished by two plants belonging to the same genus, grown in the botanic gardens in Italy, *Lobelia syphilitica* and *L. fulgens*; the flowers of the former are abundantly visited by *Bombus terrestris* and Italian, and freely produce seeds; the latter, notwithstanding its beauty and its great store of honey, is never visited by insects in the neighbourhood of Florence, and never bears seeds spontaneously, but can be readily fertilised by artificial impregnation. Professor Delpeo conjectures that it is naturally fertilised by humming birds. He believes that the scarlet colour of the corolla, so common in the tropics, but comparatively rare with us, is especially attractive to small birds, but offensive rather than otherwise to Hymenoptera. As a rule, scarlet flowers are large, bag-like in form, horizontal in position, and with the nectar completely separated, which would of itself perfectly prevent their fertilisation by insects. The largest European flowers, such as the Peony and large Bindweed (*Convolvulus Sepium*) are fertilised by sphinxes and rose-chafers.

In passing from the tropics to the temperate regions, we observe a general falling-off in the number of species of native plants, caused by the disappearance of those animals which are useful for their fertilisation. Thus a large number are lost whose impregnation depends upon humming birds. Roses and Peonies disappear where the larger Coleoptera are no longer found. The greater number of Silene, and especially the night-flowering species of Silene and Lychnis, find their limits where nocturnal Lepidoptera cease. In the Arctic zone those plants only can be found which are fertilised by the agency of Hymenoptera, Diptera, or the wind. This law is illustrated by the flora of Nova Zembla lying between 71° and 76° N. lat., and Spitzbergen, between 76° and 80° N. lat. Out of 124 species of flowering plants constituting the phænogamous flora of Nova Zembla, six belong to the tribe Pediculariaceæ, which are neither self-fertilised, nor by the agency of the wind, but entirely by the help of hymenopterous insects. The inference is drawn that, notwithstanding the severity of the climate (the mean temperature of August, the hottest month in the year, not rising above 5° C. or 41° F.), some insect of this class must find its home there. Accordingly Spören records observing a single beetle and a ground-bee, with a few flies and midges. The insect described as the ground-bee is probably the widely-diffused *Bombus terrestris*, one of the most active of insects in the fertilisation of plants.

Professor Delpeo thus classifies the 124 flowering plants of Nova Zembla: sixteen dichogamous, fertilised by Hymenoptera; eighty-four dichogamous or homogamous by Hymenoptera or Diptera; twenty-four dichogamous by the wind. Out of ninety-one flowering plants found in Spitzbergen, two may be described as fertilised by Hymenoptera, sixty-three dichogamous or homogamous by Hymenoptera or Diptera, and twenty-six by the wind. In neither country are there any plants dependent on Lepidoptera for their fertilisation.

## ENTOMOLOGICAL SOCIETY'S MEETING.

The first March meeting was held on the 7th inst., F. Pascoe, Esq., F.L.S., Vice-President, in the chair. The Rev. Mr. Gorham exhibited *Scaphisoma neglecta*, a new British species of Rove Beetle, and Mr. Janson a number of beautiful Butterflies collected during the months of November and December last by his son at Chautauk in Nicaragua.

Professor Westwood exhibited an extensive series of Locusts from the Hopetan collection at Oxford, with a view to the determination of the species entitled to the specific name of *Locusta migratoria*. Amongst these were several British specimens from different localities agreeing with Fischer's description of the migratory Locust, but the species of which so many specimens were last year taken in Devonshire proves to be *L. peregrina*, an Indian species eaten by the natives of India in curry, whilst the specimens taken in Ireland, and described by Curtis as a new species (*L. Christi*), is the *L. cinerascens* of Fischer, specimens of which from different continental sources are also in the Hope collection under the name of *L. migratoria*. Mr. Butler exhibited specimens captured in Switzerland at the same time and place, with the view to determine whether *Argemone Niole* may not be a mere variety of the common Frillary Butterfly, *A. alpine*. Mr. Stainton exhibited a specimen of the Tineidous *Comptosia Leimigella* reared in this country from Russian larvae.

Dr. Wallace, of Colchester, gave his annual summary of the progress of silk culture in England during the past year. Both the cocoons and moths of the *Saturnia Yama-Mai* and *Perny* had been larger last year than in previous seasons, showing that the species had so far succeeded well in this country. As many as 28,000 specimens of the cocoons had

also been reared by an Austrian nobleman in Moravia. The price of Silkworm eggs had greatly increased, being now as much as 2½ p. oz., the previous prices being 1s. or 5s. Silk as fine as any produced in South Austria or Italy had been produced in England, especially in the neighbourhood of Farnborough. Specimens of silk grown in California were also exhibited.

Mr. A. Miller exhibited a remarkable Acorn-like gall on the leaves of species of *Cochium*, from India.

Professor Westwood read a memoir on a number of new exotic genera and species of Psalophidae. A discussion took place on the question of the parasitic connection of *Rhipiphorus* and the common Wasp, with reference to the views published by Mr. A. Murray on the subject in the "Annals of Natural History," which had been strongly combated by Mr. F. Smith and Dr. Algenon Chapman.

## PROPAGATING CROSS-BRED CLEMATISES.

LITTLE has been published as to the best method of propagating the new Clematisses, which to those who, like myself, possess only a single plant of each variety is a matter of great importance.

We have in the grounds here the finest specimen of Clematis Vitalba, or common Traveller's Joy, which I ever recollect to have seen; it has completely overtopped a large Elm tree about 50 feet high, and is an object of great beauty in the autumn months, when it is covered with its beautiful feathery festoons. It occurred to me that this might make a useful stock on which to graft the new Clematisses; accordingly I dug up about sixteen roots in the early part of February, potted, and placed them in gentle bottom heat, and they soon began to push. I then cut them down to within 2 inches of the pots, and grafted them with the new varieties, and most of them appear to have taken and are growing.

Whether any additional vigour will be obtained by grafting on this wild stock (as is the case with the more delicate kinds of Grapes when grafted on the Syrian) remains to be proved, and I shall be happy to report my success at some future period. I intend planting them alternately with climbing Roses to cover some large bell-shaped trellises in the pleasure grounds. No doubt the best plan would be to establish plants in pots early in the autumn, so as to have young healthy stocks to work upon soon after Christmas, as they must be grafted before the buds burst.

Any information as to the best methods of propagating these lovely plants would, I have no doubt, prove interesting to many.—WILLIAM ARDELEY, Bourne Park, near Canterbury.

## MARKETING THREE HUNDRED YEARS AGO.

NOW-A-DAYS, the number of shops opened in the smallest towns has very much curtailed the general business, which nearly three hundred years ago was a serious affair, as the following bill will show; it is that of a gentleman's household in 1600:—

	£ s. d.		£ s. d.
To a chine of Beef weighing 12 stone.....	0 18 0	To Sixteen Artichokes.....	0 5 4
Twelve Neats' Tongues.....	0 12 0	Nineteen Oranges.....	0 1 2
Two dry Neats' Tongues.....	0 4 0	Four Lemons.....	0 1 2
Leg of Mutton.....	0 1 1	Pine Apple Seeds.....	0 0 9
Nine Capons.....	1 2 0	Oranges, 3 lbs.....	0 3 4
Ten good Wits (probably Fivers).....	0 8 0	Lump Sugar, 9 lbs.....	0 9 0
Six Hone Pigeons.....	0 4 4	Nutmegs, 7 ozs.....	0 1 9
Eighteen Folds Pigeons.....	0 4 6	Synnamon, 1 oz.....	0 0 4
Six Rabbits.....	0 4 2	Eight gallons Claret.....	0 16 0
Half a hundred Eggs.....	0 2 0	Five puns Caraway.....	0 2 6
One peck of fresh Oysters.....	0 3 0	Three quarts Sherry.....	0 2 0
Two Collyflogies.....	0 3 0	Three quarts Whight Wine.....	0 2 6
Thirty Lettles.....	0 0 4	Butter, 50 lbs.....	0 15 0
		Eight bushels Wheat.....	0 2 0
		Two hogsheds Beer.....	1 4 0

Eggs at 2s. the half hundred cannot be considered dear, though they were considerably cheaper some seventy years previous to this date, when Henry VIII. rooted out the monasteries. There is a curious old Percy ballad extant, which imputes all the evils of dear provisions to this measure. It is written in broad Somersetshire dialect:—

"Chill tell the what, good yewell,  
Before the vriers went hence,  
A bushel of the best wheate  
Was sold vor vorteen pence;  
And vry eggas a penny,  
That were both good and newe."

Nor can it be wondered at that they were so cheap, seeing that in the previous century a hen was only 3½d., and a goose 3d. Perhaps the most extravagant prices in the marketing bill

are those of Caniflowers (Collettoleys), and Artichokes, but they had only just been introduced, and were considered as great rarities, which, in a general way, were only found on royal or noble tables. Potatoes were equally considered as delicacies, not to be obtained by the vulgar herd. The same thing may be said of the sugar, which at 1s. per lb. would not be in general use. As early as the fourteenth century it is mentioned, but only as a luxury, which it continued to be down to the reign of King James.—(*The Food Journal*).

### LEVELLING AND DRAINING.

For ascertaining the depth to which an elevation of earth has to be removed; or for determining how drains must be directed, an instrument must be employed. The simplest that can be devised, and the one most readily presenting itself, is the boring rod. Two pieces of board, 3 or 4 inches broad and half an inch thick, are nailed together in the shape of the letter T, care being taken to have the head perfectly square to the body, which is usually about 3 feet long. Down the centre of the body a black line is drawn, and near the bottom a hole is cut to allow a plummet to hang. When the string of the plummet cuts the line, and the bob hangs freely—that is, is not resting on the body of the T, the head being placed at right angles to the body makes a perfectly level line, as level as it could be made by a carpenter's spirit level. It is not easy to sight along the top edge of the T, so it is well to have a sight nailed on to each end, and made to project from the side about 2 inches. They ought to be exactly level with the head of the T, or else, when a sight is taken on the presumed level line, it will in reality be on a grade.

The operator having brought his boring rod into adjustment, can easily hold it quite straight, so as to keep the string of the plummet bob on the centre line. He then has only to send his assistant with a staff to any point, the level of which he wants to know. By looking along the sights, he can see where the line will cut the staff, and taking the difference in height of the reading on the staff and the height of his eye, or the top of the T, above the ground, he can find out whether the land rises or falls in that distance, and how much. It is very convenient, however, to have a rod graduated with feet and inches, of any convenient length, say 6 or 8 feet, with a large target to slide on it, coloured in opposite quarters red and white. This can easily be seen by the eye, and with very little practice any one will be able to work with considerable accuracy. When the correct level has been obtained, the target is tightened by means of a thumb screw at the back of the staff, and it can be kept in that position until the operator comes up to measure the difference in height.

This is the readiest and simplest form of a levelling instrument. Any one can get this level, to give it a dignified name, made by any carpenter, or, indeed, make it for himself, and if it is broken, the cost of repairing it is trifling.—(*Toronto Globe*.)

### THE PEAR FLY.

I HAVE a large garden on the borders of Essex and Suffolk, with soil of the richest friable loam, not sandy, and not an atom of clay for yards down beneath it. Being a short distance from the village, it stands out almost surrounded by arable land, and there is no other garden near it. The kitchen garden is nearly an acre in extent, walled on three sides, with only a hedge on the south side. On the other side of the east wall is an orchard of half an acre, filled with old Apple trees and one very fine standard Marie Louise Pear nearly forty years old. This tree, the only Pear tree in this orchard, used to bear fine crops of fruit. In 1865 I gathered about four hundred Pears off it, the greater part of which I sold well in Covent Garden, but since then I have not gathered one, owing to the ravages of the Pear fly. In the kitchen garden, near the wall separating it from this orchard, was an espalier Beurré Diel, about forty years old, and the first symptoms of the "Pear-fly disease" appeared on this tree in 1866, and from this tree it has seemed to spread to other trees in the kitchen

garden, as well as to the Marie Louise mentioned, in the orchard; and from that time I have never been able to get rid of it.

The loss occasioned has been most serious, for I have about eighty Pear trees, of all forms and sizes, all of which are now regularly every year attacked by this intolerable pest. In your *Journal* for July 9th, 1861, there is a short notice of this fly, but I have not seen anything else about it since then. In that article the only remedy mentioned was picking off and burning instantly all the diseased Pears, so that the maggots, being killed, could not fall out and quietly repose in the ground till the next spring, to turn up again as flies and settle in the bloom to lay their mischievous eggs. The year before last I burned hundreds of fruit this way, going round the garden with a basket or flower-pot, and picking off or picking up all I could find diseased. They can easily be detected, owing to a nasty, unhealthy-looking, whitish swelling halfway down the Pear when the fruit is about an inch and a half long. Left to itself, this turns black and bursts, and the Pear falls off. But this heavy picking of 1868 seemed totally ineffectual, for last year the insect made its appearance just the same, although I bought eight bushels of lime, which I laid down slaked under every tree, thinking that this would destroy the maggots, or prevent their flies rising through it. I must have picked off and burned at least a thousand last year. Off one very old espalier alone of Kirke's Beurré I must have taken three hundred, and instead of a crop of at least four hundred (about six hundred set), I only gathered about seven dozen.

The insect seems to be spreading in this part of the country. A friend about eight miles off has had it for the last two years in his garden, and another about fifty miles off. In the latter case the gardener told me last year that it commenced, the same as with me, on an old Beurré Diel. I have cut down and burnt my old tree by way of making an example of it, but, of course, I cannot do this to the other eighty. I think, perhaps, by promoting discussion on the subject in your pages, some remedy may at last be found. As flies appear to hate sulphur, I have thought of syringing the pyramids and espaliers with a solution of that, soot, and soft soap, just as the case of the fruit bud expands, which will be in about a week's time. The trees are all a picture of health, covered with bloom buds; some are on the Quince stock, and others on the Pear stock, some of the latter 10 feet high.—CENTURION.

[We shall be obliged by communications on this subject, for it is a spreading evil. The notes we published in 1861 were communicated by F. J. Grahsm, Esq., of Cranford; they were communicated to the Fruit Committee of the Royal Horticultural Society. We now extract the description there given of the insects.]

"To Henry Webb, Esq., of Redstone Manor, Reigate, I am indebted for several specimens of Cattilac Pears, which he sent me on the 25th of June, 1860, in which he had discovered several small maggots, which caused the fruit to fall off even at that early period. I at once placed them in a glass and covered them over, and on opening it in February last I found two flies had been produced, a male and female, which I will endeavour briefly to describe.

"The female is about three-eighths of an inch long, appearing to the naked eye of a pale gray colour, and in general formation like a common house-fly; but under a lens its distinctive characters are at once perceptible. Head semi-orbicular, dingy white, with a black velvety mark in front reaching down to the antennae, and terminating at the back in form of a crescent; antennae dark, set with short spines, and slightly curved inwards; eyes rich brown, oval, widely separated; thorax ovate, angular at the base, with five remarkable black spots, one on each shoulder and three below, divided by a scarcely perceptible suture; several small black dots between the larger spots, out of which stiff setae issue, the whole bearing a close resemblance to ermine; scutellum semi-ovate, centre white, with an angular black spot on each side, ending in a point with a stiff seta; abdomen four-jointed, dingy white, with three black spots on each joint, the centre one angular; wings dusky, long oval, with five principal nervures and several transverse; legs black. Under a lens this is a very pretty fly, belonging to the family Muscidae, of which Mr. Curtis enumerates forty-nine species in 'British Entomology'; but in the absence of figures and description I cannot identify it with any of them. It appears, however, to correspond with 'Dexia nigripes,' figured by Walker, 'Diptera,' p. 12, fig. 11, although he describes the thorax as quadrimaculata, yet shows five spots upon it exactly according with my specimen. The male is smaller, of a more common dingy colour, and not handsomely spotted. The maggots are

very similar to those of the blow-fly, but smaller. At what time the eggs were deposited, or in what part, cannot be precisely stated, but most likely when the Pear was in blossom, or very soon afterwards, as I have frequently discovered the larvæ of *Lepidoptera* in the blossoms of other trees, and bred them until they arrived at the perfect state."

We think that 2 inches deep of spent tanners' bark, spread over the surface of the soil round each tree, would prevent the parent insects emerging, as it does in the case of the Gooseberry saw-fly.—Ers.]

### GARDENERS' ASSISTANTS.—No. 1.

#### MASTIC L'HOMME LEFORT, OR COLD GRAFTING WAX.

We have in this an exceedingly useful article, its long French unmeaning name operating, however, somewhat against its introduction in this country. It is a grafting wax prepared so that it can be readily used at any time in a cold state without any further preparation, and in this way it is greatly superior to, and much more useful than any other. Common kinds of grafting wax—compositions of tallow and resin, &c.—are prepared in various ways, but must be applied in a warm state; and as this necessitates fire, they become, excepting when a quantity is required, rather inconvenient and expensive. In France grafting wax is much more used than in this country. Here a preparation of clay and dung is principally used, answers exceedingly well for ordinary purposes, and has the merit of costing nothing beyond the labour of making and applying, but even this, where only a few grafts are to be done, becomes pretty considerable.

This Mastic L'Homme Lefort is always handy, always fit for use, and exceedingly easy of application, being easily spread over the parts with a piece of wood or the blade of a knife like butter on bread. It is a substance resembling half-melted gutta percha, of about the consistency of common white lead, and it will keep good and fit for use for years in the little tin boxes in which it is sold, although when applied and exposed to the air, it soon hardens, and effectually prevents the access of the air to the cuts, which is the office for which it is employed.

Having now used this substance for several years in grafting all sorts of trees, I am enabled to speak confidently respecting it. I have found its application satisfactory in every instance, but especially so in the grafting of Vines. For this purpose it is far, far superior to any other article that I have used. As considerable moisture is maintained for Vines in their growing state, the use of clay or moss in grafting very frequently excites the emission of roots from the graft itself, which, thus forming roots of its own, does not unite with the stock. By the use of the mastic this danger is avoided, and success is almost certain. For this purpose, therefore; for all the more delicate operations of grafting, such as Roses, Azaleas, &c.; and for placing over wounds or bruises on plants generally, I venture to recommend it highly.

It is a substance which should be found in every garden. It will be found useful in a thousand different ways, being always at hand, and always fit for use, so easy of application, and so efficient for its purpose. It is a good assistant.—ARCHAMBAUD.

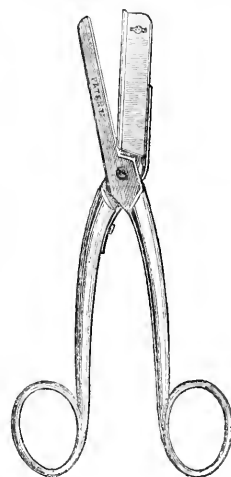
### RESURRECTION PLANT.

The *Mesembryanthemum Triplicatum*, as well as the *Anastasia*, is known by this name, or at any rate, the seed vessels are so called. The plant is, I believe, a native of South Africa, and the specific name *Triplicatum* does not refer to its being a native of Tripoli, but to its leaves resembling those of the Sea Starwort *Triplicatum*. The seed vessels are occasionally sold in this country, and they are most beautiful examples of special contrivances for special ends. When dry they seem to be nothing more than a round button, three-quarters of an inch in diameter, at the top of a smooth stalk; but there are a number of lines radiating from the centre, indicating the divisions of the capsule. If this dry seed vessel be dipped in water about as warm as the finger can bear, it will almost immediately begin to open, and gradually each follicle, of which the seed vessel is formed, will rise up and slowly turn back, until it becomes a many-rayed star. Then there will be seen at the base of each follicle an opening through which the seeds can escape. As it dries, the follicles shut themselves up again, and once more assume the form of a button. The experiment may be repeated over and over again. The explanation of this phenomenon is that the seeds, in order to germinate, require to be sown whilst it is actually raining; so the seed vessel remains firmly closed during dry weather, but as soon as there is sufficient moisture it spreads out its rays and scatters a few seeds. If the weather should

become too dry it will again close up, and keep the remainder of the seeds, if all should not be sown, until another rainy day.—ROBERT HOLLAND.

### FLOWER-GATHERERS.

MANY forms of these have been invented, and although the questions may be asked, "Is not this one of the imaginary wants of the rich?" and "What did people do long ago to gather flowers?" yet few will, I think, doubt their convenience. In a conservatory or greenhouse they prevent the necessity of reaching over to pull off the flowers, and out of doors save them from falling down upon the ground and getting soiled. Of all the flower-gatherers which I have seen, one which has lately been brought out under the name of the Selby Flower and Fruit-Gatherer is the neatest and best. It is patented by Mr. Blyde, and introduced by Messrs. Dick Bodelyffe & Co., seedsmen, &c., 129, High Holborn, London. There is a spring shield attached to the cutting blade, and when the flower is cut it is firmly retained at the pleasure of the gatherer. For ladies, especially, it is well adapted, and as it is neat in its appearance it will no doubt come into general use when



better known; for if one has good flowers it is not too much to wish to be able to gather them without injury. The accompanying representation of the scissors will give a better idea of them than any description.—D., Deal.

### FIELD MICE.

No animals are more easily caught than these. Having once suffered very much from them, I quickly cleared them off in the following manner, which I had seen recommended in some work. Trample the ground firmly, then make holes, say 8 inches square by about the same deep. Carefully make the sides slope so that the bottom of the hole may be wider than the top, but in a little oatmeal and a bit of toasted cheese. The mice will jump in without hesitation, and cannot get out. I made a large number of such holes in a field, and the first morning or two found a number of mice caught, but some animals found the traps, and regularly cleared them every night afterwards; but there were soon no mice left to do mischief.—J. R. PEARSON, Chilwell.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

Be sure to salt all *Asparagus* and *Sea-kale* beds; little and often is the maxim. The time is approaching for planting *Asparagus*; it should not be planted until 6 or 8 inches high. A sowing of the late spring *Broccoli* may now be made; they will, however, be sufficiently forward for general purposes if sown a fortnight later. Pick out on a slight hotbed *Califlora* plants raised in heat; the gentle bottom heat will greatly assist in pushing them on without making them weakly and clumsy, as when they are grown under glass. Also pick out *Celery* on a gentle bottom heat, and protect it with a frame or hand-glass until it become well-established; likewise sow seed for the main crop. See to Early Horn *Carrots*; the slugs will devour them if not protected by liming and sprinkling with coarse sand. Nothing is better, that we are aware of, than cinder ashes riddled extremely fine, and the mere dust taken out; these sown thickly over the ground present such a sharp macadamised kind of surface that the snails and slugs are at the last point of starvation before they will venture on them. If not already done, put in the main crop of *Carrots* the first

fine day when the ground is in good working order. Early Peas should be well attended to, stirring the soil, staking in due time, and if transplanted giving a little weak manure. Make sowings of *Peas, Beans, Radishes, Salad, and of Sea-kale, Rhubarb, and Asparagus* directly. Attend to the sowing of winter-keeping root crops speedily.

## FRUIT GARDEN.

Continue to protect blossoms and to eradicate insects by all possible means. See that all the winter and early spring work among fruit trees is brought to a close forthwith. Finish root-pruning all luxuriant trees; most persons may have observed the effect of moving a large Pear tree very late in the spring, it generally becomes covered with blossom buds, and such in a degree will be the effect of root-pruning at this period. Top-dress newly-planted trees, and water when necessary. If the American blight threatens mix clay and water to a paint, and add soft-soap, 1 oz. to a gallon of the clay water, with half a pound of sulphur to the whole, and with this anoint the stems or suspected places.

## FLOWER GARDEN.

See that rolling, mowing, &c., proceed in due order. Now is the period to lay the foundation of a fine lawn, the pride of English gardening. Let all fresh turfing be completed forthwith; it is a good plan to scatter rough old tan thinly over the turf as a screen from the sun until the turfs take hold; some waterings are also essential. Early herbaceous plants overgrown may be divided now; the exterior portions of the stools should be reserved, and the interior rejected. Be sure in planting them again to introduce fresh soil. Cut-in all common evergreens or shrubs before the buds become too much advanced. This is a good time to cut-in Holly hedges. With bright sunshine and drying winds it may soon require the utmost care to save recently-transplanted evergreens of large size, and no mere surface-watering will be of any service. The ground about the roots, as well as the ball, should be thoroughly soaked. After applying water and allowing the surface to become moderately firm, stir the soil slightly with a blunt fork, which will prevent its cracking, and allow the free action of the sun and air to warm the soil and encourage the production of roots. Take advantage of the present state of the ground to stir the surface soil of the shrubbery and borders, to prevent the growth of weeds and to give the whole a fresh and clean appearance. Do not neglect to put in plenty of Mignonette, and if not already done, hardy annuals should be sown without further loss of time, except in cases where they are not wanted to bloom before autumn. Those who force Neapolitan Violets should for the next three weeks or a month propagate a stock either by means of cuttings or runners. Young stock of choice Pansies of last autumn's striking should soon be planted out in the flower garden beds or borders. If the soil is in any way exhausted, a little fresh should be put in every hole, such as old, rotten, loamy turf mixed with old leaf soil, a little soot, and a little coarse sand. Too much manure may enlarge the bloom for a while, but it soon renders the plant unruly. Sow Sweet Peas if required early; soak them in warm water for six hours previous to sowing them.

## GREENHOUSE AND CONSERVATORY.

At this period it is of much importance to have a dung bed or two, giving a very moderate heat, fitted up for the purpose of cooling down fresh-cut cuttings, hardening-off annuals, and receiving plants from either the stove or greenhouse; for, in consequence of liberal shifts in these departments and the rapidly increasing size of the Pelargonium, Cineraria, Calceolarias, and Fuchsias, something will have to be removed, and a cold frame is insufficient for some of these tribes. Let, therefore, whatever spare frames come to hand be fitted up, using a little well-wrought dung, with a good quantity of tree leaves, if at hand. A steady bottom heat of 70° will be quite sufficient, and very little material will afford this temperature if some coarse litter of any kind be packed closely around the frame directly it is built. Such frames should be watered with scalding water as soon as a little heat is produced; this will destroy insects and their eggs. A coating of ashes may then be spread over, and the frames matted up at night for two or three weeks, leaving a little air all night where plants are being hardened off. Such frames will be found of great use, and will enable the possessor to keep his principal specimens uncrowded, and to stake out showy plants liberally. The climbers in the conservatory will now want attention at least once a week, whether upon the roof or pillars, or on trellises in tubs or pots. Prune off superfluous shoots; stop or pinch the tops of gross

leaders, to induce a flowering habit in those which produce blossoms from the axils of the leaves, and keep them neatly tied and trained. Large Acaecias or gross climbers will now require abundance of water; those growing beneath the floor level or under stone covers should, when watered, have a thorough soaking. Keep up in the mixed greenhouse a lively circulation of air all the early part of the day, and dispense with fire heat as much as possible. Where a house of this character contains stove as well as common greenhouse plants, a climate superior in point of heat to the common greenhouse must be maintained; and in order to do as little mischief as possible through the compromise necessary, let the requisite advances in heat be at all times made when there is a considerable degree of light. To this end practise the early shutting-up, so much insisted on by all good gardeners, and on such occasions take care that the fire has been very low, and out for an hour or two previously. The heat thus secured in the evening, if accompanied by sufficient atmospheric moisture, will establish a healthy and short-jointed growth. Make a sowing of tender annuals, if not already done. Pot-off Balsams, Cockcombs, &c.; these will do best in frames on fermenting materials, if kept close to the glass and well matted-up at night.

## COLD FITS.

Continue potting-off stock for the flower garden, also making cuttings of Verbenas, Fuchsias, Petunias, Dahlias, and Pelargoniums; they will all be wanted for some purpose. Shade carefully newly-potted stock, and more especially cuttings; and remember that in making cuttings the leaf should not be first allowed to flag, and then an attempt be made to restore it by an abundance of water—the leaf must never be allowed to droop.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

Prepared ground for sowing Onions when dry enough, by levelling and shallow digging, the ground having previously been trenched, ridged, and re-ridged. The heavy rains have made the soil too wet for sowing general crops.

*Asparagus*.—Raked over the ground out of doors to level the surface-dressing, and remove any rough pieces of wood, &c. The dressing consisted chiefly of rotten dung and leaves, with a scattering of burnt clay and rubbish from the burning heap, which, from the quantity of weeds so disposed of, will contain plenty of different salts, and so far act as a substitute for common salt in keeping worms and slugs away. Asparagus in frames requires plenty of air in fine days to give it a rich green hue, but it is easy to overdo the air-giving in cold weather in March, with easterly and northerly winds, as the shoots are thus made hard and woody, instead of succulent and sweet. Taken as a whole, there is more mischief done in March from giving too much air than from too little, provided that little is given early enough. Ground should be well prepared for fresh plantations. In very stiff soils it is a good plan to take out a trench, say 5 feet wide and about 2 feet in depth, fill the trench with prunings of trees and rough refuse from the garden, cover with from 6 to 12 inches of longish dung, and then replace the soil in a bed, and ameliorate it by manure and frequent turnings. The planting may take place at any time, but when the plants are close at hand, it is best done when they have pushed 2 or 3 inches. The roots should never be allowed to become dry; damp them before planting, and take them up from under a mat, as you go on, so that the small fibres may never become shrivelled by exposure.

There is nothing to be made of Asparagus roots after being taken up to be forced, and hence their forcing is always a great loss or a great expense. Hence many force a good part of their Asparagus in pits, on which lights can be placed and the heat applied where the plants are permanently grown. They stand forcing well in alternate years. The simplest mode is to use linings of hot dung, but hot water effects the same purpose with less trouble.

*Sea-kale and Rhubarb*.—Put more of both in the Mushroom-house, most likely for the last time, as we can forward a little out of doors, but ours outside are showing little signs of moving as yet, proving how much more backward we are than in the southern counties. This may be partly owing to cones or heaps of burnt clay, ashes, &c., over the buds and roots, as without that care, from the attacks of various enemies, we might have plenty of fine roots from which the buds at their tops had been extracted. These roots, unlike Asparagus when forced, we rarely destroy; but after hardening them off, cut

them into pieces, and plant them again, and then in the second season they may be taken up for forcing.

**Cucumbers.**—We planted out large plants, for most of the early spring plants wanted. In several cases we plunged 6-inch pots in the bed, having plants showing fruit, for a temporary purpose, and to be taken away to give room to the permanent plants. We have proved this to be a good plan for producing early fruit with little trouble. Some of our readers may recollect how we described making some rough beds for frames, with a deep trench left in the centre for the soil. For many years this plan gave us no trouble, as we always obtained a genial growing heat in the soil, and no more, and the deeper dung round it kept the heat a very long time. This season the soil in the comparatively shallow bed beneath it became too hot to please us, and thus we were forced to put off planting-out for a week or ten days, and then after turning the soil once or twice we were constrained to pour a pailful of cold water at the back and front of each light, not on the soil, but at that part where the soil in the centre and the manure at each side join. This, with a good treading to keep out air, had the desired effect, the heat beneath the soil now being genial and moist. Except in such cases, however, we would not have used the water, as it will help the dung to decompose, whilst, when a little dry, water poured down holes would always increase the heat in summer and autumn. The cold water would arrest decomposition just now, and as, after all, the heat beneath was not so much too great as it was too dry, we are tolerably sure that no bad effects will follow. At any rate, the plants are growing freely and throwing out strong tendrils. Many of these will be nipped off; but it is always a disheartening sign when plants do not freely produce these appendages, which enable them to clasp round any firm object for support. If we had put some 6 inches of old rotten dung over the centre of our bed below the soil, we should not have had to wait for the soil cooling a little. We were rather scarce of such material, and thought we could do without it.

#### FRUIT GARDEN.

Proceeded with pruning and nailing. The buds are now swelling, and the birds are at them before we get out at 6 A.M. The trees in the most forward orchard house are just opening their bloom, and the roots have been watered by degrees. In the late orchard house, the house is kept open. All the trees after cleaning have been top-dressed; those in pots have had a rim of old turf, that will produce no grass, placed over the soil in the pot, and the inside filled up with rich compost, to be replenished during the season several times, alike to give nourishment and to act as a mulching to save such frequent waterings as would otherwise be necessary. Peach-house trees have had a lot of shoots taken away, and Vines breaking and growing have been laid in their places. Some Vines in a pit filled with Strawberry plants are fastened at present to a wire longitudinally, but as they are now breaking and showing, they will want all the room by the time we have the Strawberries removed, when these shall be about done with. Put sulphur on the pipes in these pits to prevent red spider showing itself, as it is much easier to keep it away than take it away after it comes. In watering we use weak manure water and clear water alternately, and the manure is also varied—cow dung being applied at one time, soot water at another, and sheep dung at another, or a few ground bones are used as a top-dressing. It is as well even yet to avoid pouring water on the centre of the plants; the crown, the bud, and even the flower-truss are very tender and easily injured when forced. Potted-off some young Melon plants, and commenced fresh arranging and partly planting a low pit Fig-house.

**Ventilation.**—This is now, and until fine genial weather come, a matter of much importance. It is well to bring up everything hardy, but many plants are injured by having a cold dry air blowing on them freely on a cold day. No doubt it would be desirable to have cold air heated before it went freely among tender plants. Most of us, however, are glad to obtain a house or pit without the extra arrangements for heating the fresh air before it is admitted. Almost everything necessary may be done by carefully giving top air and in small quantities, so that the fresh air shall be heated and moistened by the warmer confined air passing through it. Much also may be done in giving air in front, by having the openings or ventilators opposite the heating medium. A keen enthusiast, who had a 6-feet-wide pit for Cucumbers and Melons, complained much, that when he raised or slid the sashes however little in front, the leaves of the plants nearest the opening were apt to be scorched by the fresh air passing too soon to them. There

were pipes close to the front wall for top heat; then a wall of brick-on-edge was built, which also kept the leaves from the pipes, and in the front wall, just below the lowest pipe, there was made in the centre of each light an opening the size of the end of a brick, rather more than  $\frac{1}{2}$  inches by  $\frac{1}{2}$  inches, and a wedge-shaped piece of wood just to fit the opening, with a stout nail in the end to draw it out or put it in. We find that such an opening is quite sufficient for front air even in summer. In winter and in the spring months, by drawing the tapering plug out a little, we can give as little air as we like—from one-eighth, to one-fourth, or one-half or more of an inch on three sides of the plug—and the air rushing in spreads in the space containing the pipes, and is warmed by them before it reaches the plants. Pans set on the pipes likewise give moisture to the air before being distributed. There are many other mechanical modes for giving air, but we know of none simpler or cheaper at first than these wooden plugs.

We generally tilt up the sashes a little at the back, but were we to have a pit or a low house with a fixed roof, such a plug, only the size of a brick, would be enough at back for forcing, and quite sufficient at other times when air was needed chiefly to keep out damp in winter. The span-roofed pits of Mr. Pearson with moveable copings are capital, and it is a good many years since we have seen the principle very simply applied at the nursery of the Messrs. Lee, at Hammersmith, but some of our readers may find the wooden ventilator the size of a brick suitable for their purpose. It is rarely that the plugs are ever drawn out to their full length, as when people are in the habit of giving air early they will be surprised to find how small a quantity will be required to change the air of a house and set the whole in motion.

This will be especially the case if care be taken in hot-houses to avoid sun heat and fire heat both acting at the same time. This simple matter requires some little attention. It is very difficult to get a fireman to study the appearances of the sky, &c., before he stirs his fires up. Hence many a fire is put on in the morning before a sunny day, when it would have been better if the furnace had not been touched. In a mild day it is of less consequence, but it becomes a serious matter when you have dry heat from the furnace, and cold dry air out of doors, which you must admit in greater quantities to keep down the temperature. We would, with a coolish heating medium and a little air early given, rather let the house rise 5° or 10° higher from sunshine than allow cold air to enter freely.

#### ORNAMENTAL DEPARTMENT.

Rolled, after sweeping, the lawn, and went on turfing and planting. Spring planting is more excusable this season, owing to the dryness of last autumn. Potted Zonal Pelargoniums, and commenced potting Ferns, as these are so useful for garnishing and setting off cut flowers. Kept a lot of the Scarlet Pelargoniums in the vinery, so as to produce plenty of blooms. We have done something to thin the bedding plants in the various houses, by putting those previously potted and established in small pots into wooden portable boxes, to be set on the floor of the conservatory and other houses for a week or two; and we have made a temporary pit or bed on the Vine border, by turning over the letter, making a ridge at the back and in front for the hole of a young tree to lie on. These holes form the wall plates for old sashes, hurdles, &c., to rest on. Here we have placed many Pelargoniums of the Scarlet and Variegated sections taken out of boxes, where they stood thickly all the winter, and now put singly in what we may call turf pots, these being set as closely together as possible, with a few leaves and some leaf mould below them. This is a very good plan for those who can adopt it. The turf is taken up about 2½ inches thick—the more fibrous the soil the better—it is then placed with the grass side downwards, and with a bill or knife cut into pieces from 3½ inches square. With a sharp knife a round piece is cut out, but without going so deep as the grass. The hole thus formed serves as a pot. Rich sandy loam and leaf mould go along with the roots into this hole, and the soil is made moderately firm. The pieces of turf are then packed side by side, and generally as closely together as they will go, in the place referred to, are well watered with warm water, and then the pieces are sprinkled over with a little of the same soil, and a few decayed tree leaves placed between the rows. Last season we do not think that 1 per cent. missed; at planting time the turf was full of roots, and the young roots hanging out all round the turf, ready to go into the soil of the bed, as of course the turf, with all the roots, was planted—one more advantage of such a plan. Except watering once after the plants were ex-





pouring boiling water over the walls and sides of the beds in the morning; of course this cannot in all cases be done, but where practicable it is an excellent plan. The boiling water will kill all it touches, and it must also be stated, all the spaw or mycelium of the Mushroom with which it comes in contact. Another good plan is to place a boiled potato wrapped up in a little hay in a small flower pot, and lay the pot on its side near the brinks of the woodlice. A number of such baits put down at night, and the roots can be dug out in the morning into a bucket of boiling water, will considerably thin the woodlice.

**BEIGNONIA VENUSTA NOT FLOWERING** (J. S. Smith).—We think that the plant must have too much liberty at the roots, and consequently the growth is excessive. We advise you to prune it in rather closely now, and to keep its roots confined. Train the shoots at a moderate distance apart, and so that the whole of them may be fully exposed to light and air. Water freely when it is growing; but when the growth is complete, and after August, give the plant no more water than enough to keep the foliage from flagging. In winter give only water enough to preserve the vitality of the plant. This treatment will, no doubt, result in flowering either in the present year or the next. If the plant grow very luxuriantly and make very long shoots, stop them at the sixth joint, taking care not to allow them to become so crowded as to shade each other.

**CYCLOPSM TREATMENT** (A. G. P.).—The blooming of Cyclopsms in twelve months is nothing remarkable, but it is not kept growing from the varieties of Cyclopsm persicum have been flowered in twelve months from the time of sowing the seed. To bloom in twelve months the plants should not be placed at the doors at all, but be grown in gentle heat, the seedlings being pricked-off in pans when large enough to handle; then keep them moist, close, and shaded until established, afterwards admit air, but still continue them in a moist growing bed without admitting air too abundantly. The seedlings are, in the first place, to be raised in a hothed, and continued there until they have been pricked off and become established. In summer they will afterwards succeed in a cold pit or frame placed in a slightly shaded position. They should be potted-off singly in pots 4 inches in diameter by the beginning of August, and the frame should be kept moist and shaded for a time, then admit air. In September they will require to be shifted into larger pots, and must be removed to a house with a night temperature of 50°, and be placed near the glass. In December they will need a shift into pots a size larger, and again in January, the plants being growing from the time of sowing up to that of flowering. To grow them in an ordinary greenhouse with one hundred blooms in twelve months is more than we think you can accomplish. The corns, in pitting, should be covered about half an inch. They will not do better in a cold frame early in winter than in a greenhouse. It is too cold and damp. We are referring to the varieties of *C. persicum*.

**VENTILATING (Sanguinali)**.—If we understood your plan, we have no doubt it would answer if you yourself carried it out, but we are doubtful if it would do so in the hands of a stranger. A man with a good square, being made a ventilator, is to be thoroughly under control. A very simple modification of your plan is that in Sir Joseph Paxton's houses for the million, where a ventilator thoroughly under control is fixed between each two rafters. A narrow intricate and ingenious plan is that patented by Mr. Cranston, where the roof is formed of so many planes of glass, and each of these opens less or more at pleasure. We know no better plan of giving air equally, or in any desired proportion, all over a house. We think that, before adopting your own plan, you should make yourself acquainted with the principles of the houses of Mr. Cranston, of 1, Temple Row West, Birmingham.

**HOT-WATER PIPING (A Young Beginner)**.—For moderate forcing, three 4-inch pipes the length of the house would do. For early forcing you would need four pipes. Two pipes would do in the greenhouse part if you merely wished to exclude frost; more would be wanted if you wished much bloom in winter. We presume the house is a lean-to. We would rather not give the average quantity of fuel required.

**TEA LEAVES AS A MANURE (M. K.)**.—We have no faith in tea leaves dried after being used for tea, mixed-up with soil for pot plants, instead of leaf mould; there is too much acid, &c. Used as a slight top-dressing on the surface they will be useful rather than otherwise, though we would prefer a little boiled dung for that purpose. If that, too, is absent, better use pure stable loam, and a pinch of dissolved bones for each pot—say as much as you can hold in the palm of the hand—for a 6-inch pot, placed on the surface. We would plant your clump in hard soil, succeeded, beginning with *Cerastium*, No. 1. A line of *Madame Vaucher* Pelargonium, a white, would improve No. 4, Purple Verbena.

**ORANGE-PINE SILVERWORMS (P. W. P.)**.—They are from Japan, and are known as the larvae of the Bombyx Yama-Mai. Apply to Dr. Wallace, Colchester.

**NAMES OF PLANTS (N. M.)**.—1, Chamæanthus; 2, Verulam. **NAMES OF PLANTS (E. A. G., Nottinghamshire)**.—We cannot name the plants from their leaves only. (A. D.)—*Asplenium adnigrum* (Lancashire Subscriber).—*Chamaenerium verbeutense*. (D. S.)—*Sesquifolia sempervirens*. (B. Godbold). 1, *Adiantum trapeziforme*; 2, *A. brassiense*; 3, *Gymnocarpium ochroleucum*; 4, *G. tartareum*. (M. H. M.)—*Galium plicatum*, the Cranesbill. (C. R. J.)—Any number of plants would supply you with bulbs in the autumn. (E. L. J.)—*Asplenium adnigrum*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### TRIMMING.

HEARTILY glad am I to see that the subject of trimming is again brought before our notice by our friend Mr. Hewitt; and I do indeed hope that this time the matter may not drop until something real be done, not, as heretofore, a few weeks' correspondence, and all of no avail; for Mr. Hewitt says there is even now a great deal of trimming. And yet this season hardly a Committee have taken the trouble to insert such a paragraph as he names in their schedule, which would at once show the

public that they at least would back up the judges in any cases of disqualification.

Unless something can be done all respectable exhibitors will simply give up exhibiting, and leave the field open to the black-legs of the poultry fancy, who may then try their skill in cheating each other; for what chance has an honest exhibitor against such professional trimmers as we have lately had brought under our notice—one splicing a feather in a cock's tail, another dyeing his Pigeons, and I am sorry to say, many such cases—or what honest man will care to exhibit in such company? Why cannot Committees adopt, as Mr. Hewitt suggests, some such clauses as the following in their schedules?

"The judges are instructed to disqualify any pen which they may find to have been tampered with, or in any way fraudulently dealt by. Any person who has one pen so disqualified will forfeit any prize or prizes which may have been awarded him in any class at the exhibition, and will not be allowed to exhibit again at the Society's exhibition during the following two years, and his name and address will be published with the report of the show."

"If any case of birds being fraudulently dressed shall be proved to the satisfaction of the Committee, even though it may have escaped the notice of the judge, the owner may be disqualified as above at the discretion of the Committee."

I should also like the following clause:—

"Every exhibitor will be required to sign a declaration that the birds exhibited have been in his or her possession two months prior to the show. In the event of any fraud in this respect being detected, the exhibitor shall be subject to the same conditions as in the previous clause."

I suppose it would be of no use to ask Game breeders to allow dubbing Game cocks to be called trimming, but I, for one, would much prefer to see Game exhibited with their combs complete as intended by nature; but if this amount of trimming must be allowed as regards Game, surely we can stop the plucking and face-trimming in the Spanish classes. A skilful performer can make a very inferior Spanish cock appear a very good one by the aid of a pair of forceps, a sharp knife, and a little white paint, but that bird is no better bred in consequence, as many a poor fellow who has purchased at shows has found out to his cost.

I am aware much difference of opinion exists as to whether it is fraudulent trimming to remove just a faulty or broken feather or two from the body of a bird. I, for one, hold that it is, for if allowed to draw a feather from the body of a Brahma, why not also from the hack? The line must be drawn somewhere, let it be on the side of honesty and straightforwardness.—PHILIP CROWLEY, Waddon House, Croydon.

### GAME FOWLS.

LIKE "CORNISS DUCKING," I am a breeder of Game fowl, and have been so for upwards of forty years. During my early time I had the assistance of an experienced breeder of fifty years' standing, who pointed out to me the necessary qualities a good Game cock should possess for the pit, and from my own experience as a breeder, both for the pit and exhibition, I must differ from "CORNISS DUCKING" on several of his remarks.

He says a Game cock should have a short hawk-like bill, which I am of opinion shows a decided Malay cross. My idea of a good Black Red Game cock is realised by those that have been exhibited this year by Messrs. O'Grady, Matthews, Chaloner, Fletcher, and a few others. What, I ask, can look better than these birds with their bright and hair-like hackles, long keen heads, and brilliant eyes? How anyone who professes to be a judge can think birds possessing these points have any cross of the Malay in them, I am at a loss to imagine.

I have attended several shows this year, and with but few exceptions I did not see any birds in the Game class showing the Malay cross, and they were in most cases passed over by the judges. I trust we shall not go back to the old strains named by "CORNISS DUCKING;" they were, doubtless, pretty good in the pit, but several of them very unsightly, such, for instance, as the Tawny Duckings, Orange Gingers, and several other Muffs too numerous to mention, for they will bear no comparison with our beautiful Black Reds, Brown Reds, Duck-wings, and White and Piles of the present day.

I would have "CORNISS DUCKING" bear in mind, that in breeding Game fowls of the present day we are aiming at two things, beauty of plumage and a form which is pleasing to the



or some other fancier, would kindly inform me whether it is advisable to introduce a decidedly black strain into a mottled one, as I have often doubted the policy of doing so.

Too much stress is laid on the eyes of Pigeons. I think this point, as far as Trumpeters are concerned, ought to be almost altogether thrown overboard. If one can succeed in all the other points, a correct eye, which in the present instance should certainly be an orange one, is almost sure to follow.

With Mr. Firth's standard of excellence in colour I can hardly agree, though I have an imported Mottle in my possession which exactly tallies with his description. He makes a Mottle too dark. My conception of a perfect bird is, tail flights and ground colour a brilliant black; head and nose finely mottled in about equal proportions of colour, which should extend to form a bib rather larger than the black on a Nun's head and neck; the mottled colour should develop almost suddenly into a deep black. From the hood a slight mottling should extend down to between the shoulders, but it should be distinct from an oval patch of mottling on each side. The feet should be quite black, excepting, perhaps, two small white feathers in each.—*FLEUR DE LIS.*

### SKY TUMBLERS.

SOME thirty years ago the flying of Almond Tumblers was a prevalent pastime at Macclesfield, and begat the custom of Sky Tumbler flights, still the notorious habit of the Pigeon fanciers of this town. Flight against flight generated the idea of special birds for flying; and one enthusiast, in search of new blood, introduced the Tippler strain of Tumbler, which, crossed with the Almond Tumbler, proved a success. Another enthusiast, prompted by the cross of Tippler and Almond, added the Bald and Bead, and thus again crossed the Almond and the Tippler and Almond, and this repeated cross again was successful. A stock of birds, "Sky Tumblers," was raised from these crosses of Almond, Tippler, Bald, and Bead, the stock of the present Macclesfield Tumbler Pigeons. The only variation to this day is the care taken to pair birds as remote in near-kindred as possible, the blood of the ancestral stock yet pervading every cote and flight of the Macclesfield Tumblers. Hence we have the tidy, tight, English Sky Tumblers, called now Macclesfield Tumblers, many of the birds being in colour the same as the famed Sky Tumblers of that name.

My authority for the preceding pedigree, &c., is an old Pigeon flyer of Macclesfield, who speaks from memory and personal experience, and whose story thus given, was communicated to me by "Brown Rep," your former correspondent upon Macclesfield birds.

I have only to refer to the contribution of Mr. G. Hardy in your Journal of March 3rd, page 175, upon the Roller Pigeon, and your readers have the species, or rather genus, of the Macclesfield and the Birmingham Sky Tumblers at sight—all Tumblers, evidently, though I suspect a continental dash of blood in the Birmingham birds, from the muffed leg common to this variety. The Leicester is the Birmingham bird.—*READER.*

HAVING noticed an article in the Journal, I beg to forward my humble remarks respecting what your correspondent calls the Sky Tumblers, although I had never known them by that name until I read a letter in your paper on the subject. At Sunderland, in the county of Durham, I kept Tumblers for upwards of eight years, and during that time I never had a bird in my pen with feathers on its legs. I had three kinds of Tumblers; I had the Blue Beards which always bred the same colour as themselves—they were my best flyers, but seldom tumbled; then the Balpate, which was not equal to the Bead in high flying, but tumbled more, but the best and cleanest Tumblers were the Variegated, which were of all colours. This breed was the smallest, with the shortest face and beak. If my birds flew an hour, I at that time considered it the best of flying. About eight years ago I came to reside in Gloucester, and brought six pairs of birds with me. Acting under the advice of a friend experienced in such matters, I crossed my Beards, Balps, and Variegated, and out of this mixing of different breeds the young birds both flew better and tumbled cleaner and oftener than any birds I had ever had before, and some of them roll, too, in first-rate style.

Your correspondent (see page 19), says he does not know why a bird is called a Roller, except for tumbling. Now, a Roller drops out of the flight suddenly, and rolls over like a

ball perpendicularly. You can see, as it were, a hole through the ball.

Mr. Thomas, of Gloucester, was my adviser, and I think he is up to the mark in the breeding and training of the Tumbler, this hobby being the whole delight of his leisure hours. Last year and this, he has had two sad losses with his favourites. Last year he had a flight of birds trained almost to his satisfaction, that would fly from four to six hours any fine day. On Good Friday last, about nine o'clock in the morning, he turned this lot loose: away they went, up, up, in the heavens, until he could not discern them, and they never returned, and have not been heard of since. As a local rhymist said the next day—

"Poor James a sad misfortune 's had,  
Which makes his once gay face look sad,  
His leisure hours' delight hath flown,  
Away to upper worlds unknown;  
Up, up, they rose, high and more high,  
Till out of sight of mortal eye;  
And as they mounted, this his cry—  
Exclaim'd I

"When day had given place to night,  
He said, 'My own, my bonny flight,  
Hath passed away, they 'll greet my sight  
No more, no more.'"

Though this loss rather put "his pipe out," he said he would try again—he had kept these birds so long that they almost seemed part of himself: so with the help of a few from a well-known stock, and the few birds he had left, he managed to raise by the fall of the year a flight of twenty, that surpassed his former flight. I have known this flight do from seven to eight hours day after day in fine weather. Last month, strange to say, this lot went the same road as the last, though next day five out of the flight returned at daybreak. Had he not lost this flight, I do not hesitate to say he could have given a challenge to any fancier in England for length and height of flight or work. Some birds in this flight would roll 20 yards at one effort, stop themselves beautifully, and regain the flight, repeating this more or less during the whole time of flying. I am sure I never saw one bird in either of these flights crack its wings like a whip, which we consider is a sign of poor breeding and not a sign of strength of flight, which one of your correspondents asserted.

Of all the Pigeon tribe, for my fancy, give me the Tumbler, which is both pretty to look at and gives one so much amusement when soaring in the sky. I think if this fancy were more generally known, many gentlemen would find a fund of enjoyment in breeding and training this wonderful little bird.

I should feel proud to read anything in your valuable paper which would give instruction to intended fanciers, or those who are already fanciers, for without proper management the birds are a bore, but trained skilfully they become a pleasurable pastime. My friend Mr. Thomas says, he does not believe that one fancier out of ten understands the management of the Tumbler.—*J. G. LEVISON, Ship Carver, Docks, Gloucester.*

[Tell us how you get your birds to start off and fly high; several of our correspondents find it difficult to frighten their Pigeons up and make them fly.—*EDS.*]

### BIRMINGHAM ROLLERS.

I AM informed by Mr. H. Noyé, Secretary to the Birmingham Columbarian Society, that a class of Roller Pigeons is flown in Turkey as high-flying birds, which fly several hours, ascending and descending at intervals, and interweaving rolls and tumbles with their descent at such intervals. These Turkish Rollers, Mr. Noyé says, descend by consecutive rolls, balancing themselves like a Hawk or Lark between the rolls, and so fly how far they are still from the earth; and then rolling again and ending in another balance, they close their wings and finish their descent as the fall of a stone, by a dead rapid dive down upon the dovecot roof. Mr. Noyé speaks from personal observation, and noticed the peculiarity in these Turkish Rollers, of as many as twenty feathers in the tail, and a double feather in some of the birds, from one quill in the centre of the tail; the usual tail feathers of our Tumblers being twelve in number only. The centre double tail feather, Mr. Noyé says, he has also observed in the Birmingham Roller, though he does not say if the Birmingham Roller ever carries more than twelve feathers in the tail—a point worth notice in this inquiry. The Turkish Rollers too, Mr. Noyé states, have clear legs and muffed legs interchangeably, as the Birmingham Rollers have likewise. Mr. Noyé does not describe the colour of the Turkish





## WEEKLY CALENDAR.

Day of Month.	Day of Week.	MARCH 31—APRIL 6, 1870.	Average Temperature near London.			Rain in last 49 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.	
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. e.		
31	TH	Royal Botanic Society's Spring Show closes.	55.3	33.9	44.6	18	41 af 5	20 af 6	58 af 5	48 af 5	29	4	14	90
1	F	(Meeting of Royal Society, 8.30 p.m.)	55.0	34.4	44.7	21	38 5	31 6	57 6	53 6	2	3	56	91
2	S	Length of Day 14h. 57m.	57.8	36.7	46.9	21	36 5	33 6	56 6	58 7	3	3	58	92
3	SUN	5 SUNDAY IN LEVY.	57.1	35.7	46.4	20	34 5	35 6	56 6	58 9	2	3	21	93
4	M	Meeting of Entomological Society, 7 p.m.	56.7	35.7	46.2	17	32 5	37 6	57 6	8 10	3	3	2	94
5	TU		57.0	36.7	46.9	21	29 5	58 6	42 7	13 11	4	2	43	95
6	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	57.0	36.9	47.2	14	27 5	40 6	43 8	13 8	5	2	27	96

From observations taken near London during the last forty-three years, the average day temperature of the week is 56.5°; and its night temperature 35.9°. The greatest heat was 78°, on the 3rd, 1845; and the lowest cold 16°, on the 1st, 1838. The greatest fall of rain was 1.19 inch.

## THE ORCHARD HOUSE.

**A**S the orchard-house system of growing Peaches and other fruit trees has been in practice for many years, and the question of its superiority or inferiority as compared with the method in general practice at the time of its introduction may be supposed to be finally settled, I think it is desirable to ascertain from experienced growers how far the new system has realised the expectations which were originally entertained of it, and in what particulars it may have failed to do so. There are many amateurs who, in the enthusiasm of the moment, and under the charm of novelty, caught up the idea, and built orchard houses, and who are now disheartened because they have not realised all the wonderful things which were predicted from the adoption of the system. Now, I think a discussion of the results of experienced growers up to the present time would tend to revive the hopes of the downcast, and place the orchard-house system upon its true basis as compared with other modes of culture.—AMATEUR.

[We forwarded this letter to Mr. Fish, who has sent us the following remarks in reply.—EDS.]

HAVING several times discussed the subject of orchard houses, I should like "AMATEUR'S" letter to receive some attention from others. Meanwhile, considering orchard houses in general to be glass-covered houses, but otherwise having no artificial heat, I would unhesitatingly pronounce in their favour. The disappointments have often been owing to want of attention, and also to perhaps rather too much enthusiasm, without which nothing great or commanding has ever been done. For the present, then, I shall confine myself to the questions put.

First, I think it would simplify matters if orchard houses were not heated artificially; when so heated they become less or more forcing houses. As a matter of utility, however, there can be no question of the desirability of being able to apply artificial heat when wanted, as to exclude frost in spring, to prevent a check in dull cold weather in summer, to ripen fruit, and especially to ripen the wood well in autumn. I would never despise a stove, a flue, and far less a hot-water pipe in an orchard house, even though these should be little used; but then we depart from the primary meaning of the orchard house, and may just as well call it a Peach house or a viney.

Secondly, a mixed collection of fruit is chiefly advantageous to the amateur who wishes to have as much variety in as little space as possible. In a lean-to house I have trees against the back wall, trees or small bush pyramids in pots in front, and Vines up the roof at 6 or 7 feet apart. Many with a considerable amount of enthusiasm may adopt the same plan, where they want variety in little space, but the plan is not the best. As Peaches and Nectarines approach maturity, their flavour depends not only on light, but on plenty of air, and consequently less heat in the house; whilst less air and more warmth would have suited the swelling Grapes. This is the chief drawback, and therefore, to give each crop the best chance in a

small space, Grapes should have a division to themselves, and Peaches and Nectarines should be similarly situated. Very fair crops of all may be obtained, but there is the drawback I have noticed. Most of our early Grapes, as Hamburghs, Muscadines, Sweetwaters, &c., will ripen well in an unheated glass house with somewhat large squares of glass, but later kinds would only succeed by shutting up the house early to enclose sun heat, which might not so well suit Peaches ripening.

As regards the relative merits of pot culture and planting-out in the border, a similar reply must be given. A great variety in little space can be obtained by the pot system, and the plants are more easily kept under control, but they require much more attention, and that more regularly, too, than if they had been planted-out in the border. Watering alone is a matter to be thought about, especially if water is at all scarce, and the neglect of watering for a day may make the crop fail. Growing fruit trees in pots is a great source of enjoyment to amateurs, and much good fruit may thus be obtained, more especially if the fruit is sufficiently thinned so as to take only a moderate supply from a small tree. I have fairly tried the pot system, and after its freshness has gone I can imagine how pleasing it must be to many, but still the labour, and especially in watering, is considerable when the number of pots is large. On the whole, were I resolved to grow as much fruit as I could with the least amount of trouble in a lean-to orchard house, I would have trees against the back wall, and trees planted-out and trained to a low curved trellis in front.

When houses are not heated artificially, and air is kept on all night, or given early in the morning, there is less likelihood of an attack of red spider than in heated houses. A moist atmosphere and the use of the syringe will, with fresh air, be the best preventives. Sulphur spread on hot-water plates, say at 160°, or sulphur placed on quicklime after it has been slaked, will help to dislodge, if not kill, the red spider. Clear soap water is also good. The great remedy and preventive is the syringe or garden engine.—R. FISH.

## FUNKIAS.

WHAT charming border plants Funkias are, but how little attention has been paid to their cultivation, while enough praise can scarcely be lavished upon them for their decorative qualities! They flourish almost anywhere, and I do not think that it is saying too much for them that they can scarcely be surpassed, for they are well adapted for either in or out-door decoration. They do not reward us, it is true, with their gaudy-coloured flowers, for they are, as far as I am acquainted with them, either approaching white or of rather a leaden or lilac hue; but their beautiful foliage more than compensates for any lack of colour.

Of *Funkia grandiflora*, with its beautiful white flowers and handsome foliage, too much cannot be said. They are sufficient to place it among the very choicest of plants employed for decorative purposes, to say nothing of the delicate perfume it emits.

*F. lanceifolia* is a very desirable plant, and deserves far

more extensive cultivation than it is at present receiving. Its pretty puce-coloured flowers and lance-shaped leaves render it worthy of a place in all collections.

*F. Sieboldii* is a noble-looking plant when in full foliage. In a shrubby border, not too much shaded, it is one of the finest-folaged border plants we have, and would almost vie with some of our more expensive Palm-like plants.

*F. undulata*, as its name implies, has wavy leaves, and is a very desirable autumn-blooming plant.

The *Funkias* are not a very extensive race, but among the variegated kinds are to be found many that are possessed of great attractions, which ought to secure for them places in all collections where fine foliage is a desideratum.

*Funkia ovata variegata* is a charming plant for edgings in a sheltered situation: grown in pots and plunged, it makes a splendid edging, and contrasts well with many of our dwarf bedding plants. *Funkia umbellata variegata* and *Funkia undulata variegata* are equally well adapted for the same purpose, but are of rather taller habit.

The whole family is worthy of cultivation. For pot culture, when well grown, the *Funkias* will vie with many of our most choice kinds of fine-folaged plants; and, besides, they are very accommodating, for they will bear a good share of rough usage. The hardier kinds may be planted in the borders where they are to remain. They are not particular as to soil and situation, but stagnant water is injurious to their well-doing, especially during winter.

I find they thrive well in a mixture of sandy loam, leaf mould, and peat; for pot culture the same compost may be used, with the addition of a little charcoal dust. The pots should be well drained, and the plants carefully watered as they may require. Care should be taken that the soil in the pots do not become waterlogged at any time, as that might prove very injurious. A cold pit or frame in a rather shaded situation suits the *Funkias* admirably, but they must have a free circulation of air, and be sheltered from strong winds. When fully exposed they are liable to suffer, some of their leaves being of a rather delicate texture; but they are worthy of all the care, and calculated to produce a gorgeous display, having an almost tropical appearance.

They are easily increased by division of the roots, after the plants have had a season of rest. I find that when growth is about to commence is the best time to divide them. I have not been able to succeed in raising them from seed.—M. H., *Acklam Hall, Middlebrough-on-Tees*.

### CULTURE OF THE BLACK CURRANT.

CAN Black Currants be made to pay? I answer, Yes; they are very profitable when grown as plantation trees. This I shall endeavour to prove in the following paper.

If possible select for the plantation moist loamy soil, as the Black Currant requires plenty of moisture if at all exposed to the sun; but if ground of this description cannot be obtained, a good mulching of manure during the fruiting season will contribute much towards securing the desired results.

The ground should be well trenched, and plenty of manure must be trenched in, or dug in afterwards near the surface; for the plant, like the Grape Vine, is a very gross feeder, and should be liberally supplied. Any of the following will be found useful—viz., all kinds of sewage, nightsoil, dung (and the stronger the better), old sacking, cloth or woollen rags, rotten leaves or fern, wood ashes, soot, or soap-suds; and even sprats have been applied with the very best results.

The ground, having been treated as recommended, will be fit for planting, which should take place at as early a period as convenient after the fall of the leaf, and before the trees break again in spring; but sometimes I have planted when the trees were in full leaf, and with a good watering have found them succeed well; still, unless watering can be attended to, I would recommend earlier planting. Plant 3 feet apart every way, and in lines at right angles to each other; an acre will therefore contain 4840 plants. My reason for planting at the above distance is the following. All growers of the Black Currant are aware that the finest fruit is always produced on the strongest wood of last year's growth; I would therefore cut down to two or three buds every alternate tree, as shown in the accompanying diagram—\* \* \* \* in which the asterisks (\*) represent the trees \* \* \* intended to produce fruit this year, and the dots those which bore last year, and which have been cut down to produce strong growth for bearing next year. As soon as the cut-down trees have started

and made growths of 2 or 3 inches in length, they should be carefully looked over, and disbudded where necessary; to grow fruit successfully, never allow a shoot more than will be required. From this it will be seen that my motive for cutting down every alternate tree is to obtain a constant succession of young and strong wood, and consequently fruit of better quality than would otherwise be the case.

Large fruit being a main point, I would recommend that only the largest-fruited plants be propagated, and that all the trees, when in bearing, should be looked over, the largest-fruited marked for propagation, and all defaulters rooted out as soon as the crop is gathered.

I know nothing more easy to propagate than the Black Currant. The cuttings should be selected from the strongest wood of last year's growth, should be about a foot in length, and have all the lower buds taken out, leaving only three or four at the top to form the head, the cuttings being quite clear of buds from the ground. When planted they should be made firm in the ground, especially where it is apt to get dry.

When the leaves fall in autumn the plants intended to be cut back should be pruned at once, and all vacancies filled up. Also give a good dressing of any of the manures I have recommended, and dig it in, unless the ground is very hot and dry in the summer, in which case the dressing should remain on the surface to be washed in by rain. When thus left it will prevent the soil from drying so rapidly as it would do when fully exposed.

If the above instructions be attended to the trees will require very little attention during the summer, except keeping the ground free from weeds, particularly the Bindweeds, as injurious to fruit trees in general, by two or three good hoeings.

From a rough calculation I find that a plantation of one acre treated as described will give 2420 fruiting trees a year, and taking the yield at a quart a tree, and the value at 4d. per quart, the return will be £40 6s. 8d. Although I have assumed the produce to be a quart per tree, I believe that a plantation so treated and liberally manured, would when once established produce nearer a gallon a tree. It will therefore be perceived that the Black Currant affords a good return for a little extra attention and labour bestowed upon it.—LANCASHIRE SUBSCRIBER.

### A FEW GOOD BICOLOR PELARGONIUMS.

LIKE the *Tricolors* their name is legion, and while, like them, all are beautiful, there are no doubt some which carry away the palm from others. As I have been enabled to grow during the past season most of the kinds advertised by the leading raisers, I would submit the following as those which I have found the most beautiful.

1. *Crown Prince*.—A very beautiful-leaved variety, with deep-coloured, dark bronzed chestnut zone. Leaves smooth and good.
2. *Harrison Weir*.—A very fine and bold-looking plant; leaves very thick, smooth, and flat; altogether one of the best.
3. *Red Ring*.—A bright golden leaf with bright red chestnut zone; the leaves are very much serrated, but an excellent plant for bedding purposes.
4. *Black Prince*.—A fine variety, with broad chestnut zone on a golden ground.
5. *Anthony*.—A good variety, with light golden leaf and deep reddish brown zone; flowers salmon rose.
6. *Southern Belle*.—Almost the same as Sybil. The zone is very dark, and covers nearly the whole of the leaf, which is not so large as in the varieties already described. It is one of Mr. Morris's seedlings.
7. *Criterion*.—Bright golden leaf, beautifully round and smooth, with a dark brownish red zone. The habit is excellent.
8. *Plutus*.—Margin of the leaf bright yellow, with a deep reddish bronze zone.
9. *Sybil*.—The description given of Southern Belle will very nearly apply to this very beautiful variety.
10. *Arab*.—Greenish yellow ground; bright lively chestnut zone, and good habit and leaf.
11. *Duke of Edinburgh*.—A plant of very fine habit; serrated leaf, with deep chestnut zone.
12. *Hero of Hamdstone*.—Very smooth, and excellent in foliage and habit, bearing well exposure to the weather.
13. *Prima Donna*.—One of Meera, Downie & Co.'s most beautiful varieties; margin and disk yellow, with dark red bronze zone.

I have not given any notice of the varieties of former years,

but have confined myself to those which were sent out last season; for notwithstanding the taunts that are thrown out year after year that no advance has been made, there can be no question that it does take place; and although the improvement may seem slight, yet we have but to compare the productions of one season with those of a few seasons back, and the improvement will be at once seen.—D., *Deal*.

### WINTER-BLOOMING PLANTS.

In winter a gardener has so many calls upon him for bouquets, and for cut flowers and plants for the decoration of the dinner table, that it is of the greatest importance that he should have plants that will produce flowers and foliage in abundance at that season. It is not my intention to notice Azaleas, Camellias, bulbous and other plants, the value of which is well known, but plants which when well grown, and mixed with those just mentioned, add greatly to the beauty of the conservatory or stove. I grow no plants but such as flower freely, and have sterling qualities to recommend them.

**DALECHAMPA ROSEZIANA ROSEA.**—This was introduced from Vera Cruz. It blooms very freely, even on plants a few inches high. I once saw a shelf of two hundred little plants just potted off, and all of them were showing bloom. It differs from the majority of its congeners in its erect stem. I keep my plants continually pinched back in order to form bushy specimens. Its foliage is very beautiful; the first time I saw it, it reminded me very much of our Chestnut trees in a young state. The large rosy bracts are extremely handsome, and are produced in great profusion all the winter. In summer I pick off the flowers to encourage growth. My plant has been plunged in cocoa-nut refuse, and during the autumn I took up several young seedlings, so that a good stock of plants can soon be obtained. It is very effective upon the dinner table, under the chandelier.

I grow it in fibrous peat and loam, with a liberal sprinkling of silver sand and good drainage of charcoal. In this soil it thrives well, and soon makes a specimen.

**HOTIA (SPIRÆA) JAPONICA.**—This is an excellent plant for early forcing, its erect shining green foliage, and numerous graceful panicles of white inflorescence giving it an elegant appearance. It is perfectly hardy. I plant about three dozen in a nursery bed a foot or so square, and do not allow them to bloom during the summer; they then form fine crowns. These can be so managed as to furnish two or three successions of plants from October till April. I take up a dozen at a time, pot them in rich fibrous loam in 7-inch pots, and place them either in a cucumber house or stove. It is best to force the plants gently at first. *Hotia japonica* is one of the easiest plants I ever had to force, and one of the best, and I have had as many as fifteen spikes of flowers on one plant. It is valuable as a decorative plant, as well as for cut blooms, and is a general favourite. When the beauty of the flowers is over, the plants are turned out of the pots, a spade run through the centre of each, and the divisions planted out in the nursery.

**SCHIZOSTYLIS COCCINEA.**—This is a hardy plant, with spikes of brilliant crimson, cup-shaped flowers, very much resembling those of the *Gladiolus*. When in flower, it is a highly decorative plant for the orchard house or conservatory. I have had plants from which I have kept cutting flowers from October till March. It requires no forcing, for as soon as it is taken up and placed in a house, it begins to bloom. I plant out some strong plants in the nursery in spring, and the only attention they require is to keep them free from weeds, and I do not allow them to bloom. The plant only requires to be seen in flower to be generally grown.—F. P. L.

### THE FIG AND ITS CULTURE.

In a paper on this subject at page 205, the writer observes that "the great difficulty to contend against is over-luxuriance of growth, arising chiefly from the influences of soil and climate, but somewhat, also, under the control of the pruner." Agreeing as I do with this teaching, I cannot but feel some regret that so much stress is laid on the correct pruning of the shoots, while any attention or care for the roots is quite overlooked. From my own experience in Fig culture, I am quite sure that Fig trees planted in deep rich soil cannot be kept in, or even brought to, a state of fruitfulness by simply thinning the shoots. I have seen this tried year after year with precisely the same results, and there were extremely robust shoots, clothed with

foliage of a proportionate size, but with very little fruit. The effects of the thinning process were plainly visible in the greatly increased vigour of growth imparted to the shoots that were left. Very different is the appearance presented by such gross shoots from that of the wood of a fruitful Fig tree; firm and compact in its texture, its medium-sized short-jointed growth proclaims to the experienced eye, that the even balance of vigour is maintained between the roots and branches, which is of primary importance in the culture of all fruit trees, and in none more so than the Fig.

The roots of a Fig tree growing in a deep rich soil must therefore be kept well in hand, and this can easily be done, either by an annual pruning, or by the formation of an impenetrable concrete not deeper than 18 inches under the surface. The latter method is the preferable one, for by adopting a concrete bottom, and so keeping the roots in a shallow soil, an occasional examination and cutting back of any roots found rambling beyond the concrete are all that is required.—EDWARD LUCKHURST, *Egerton House Gardens, Kent*.

### BLUE HYDRANGEAS.

HAVING read several articles lately about blue Hydrangeas, I send the following remarks, thinking they may be interesting to some of your readers.

It is now upwards of twenty years since I first saw a blue Hydrangea, and that was a fine old plant about 2 or 3 feet in diameter. It stood in a mixed bed, called an American bed, containing Rhododendrons, Azaleas, Arbutuses, Evergreen Oaks, &c.—a kind of bed often met with then, but seldom now. On first seeing the plant I thought it a new variety, but a garden labourer, with whom I was at work, told me it was the old Hydrangea, but the soil caused the difference in the colour. When he first saw it he thought it was a new sort, and he had some offsets from it for his little flower garden at home, but when they bloomed they were of a pink colour. The gardener told him the peat soil was the cause of the difference, and after taking the plant up and replanting it in peat soil the colour was blue, as with the parent plant. The peat in that part of the country was dug from a neighbouring wood, was of a very dark colour, and showed plenty of white grit like silver sand; it was far different from what I have met with since under the name of peat.

Having grown the common Hydrangea, and I may say with some success, I will here state the treatment I have found suit it best.

I take cuttings in spring from the young growths as soon as these are large enough, and put them in very thinly in a cutting pot or pan. As soon as they are struck, which will be in from two to four weeks, I pot the young plants in 5-inch pots, and put them where they will have plenty of light and air, in order that they may make that short and sturdy growth so essential to render them fit for the dinner-table as well as the conservatory. As soon as the pots are filled with roots the plants should be shifted into larger pots, using some fibrous loam and one-third rotten stable dung, with some broken charcoal and a little silver sand.

After shifting I place the plants in a cold frame, where they will have plenty of sun and air to keep them sturdy and short-jointed, and as soon as the pots are filled with roots some good strong manure water may be given once or twice a week. As soon as the leaves begin to decay, water should be gradually withheld, and in the following spring the pots should be top-dressed, and the plants brought slowly into flower with plenty of air and light, as it is on these that the good colour of the heads depends.

If the above directions be followed out, plenty of water given, and the plants kept free from insects, they will amply repay the little trouble bestowed upon them, both in the size and continuance of their bloom.—A SUBSCRIBER, *Lancashire*.

**ALTERNATION OF GENERATION IN FUNGI.**—M. Gauriel Rivet records in the "Bulletin de la Société Botanique de France" a remarkable illustration of this phenomenon in some very interesting observations on the "rust" of cereals. He finds that the fungus which causes one of the common forms of this disease, *Puccinia graminis*, will not reproduce itself, but that if the spores are sown on the leaves of the common Berberry, they give rise to the well-known orange spots of *Aecidium berberidis*, generally considered as a fungus belonging to an entirely different group. The spores of the *Aecidium*,

on the other hand, do not reproduce itself, but the Puccinia, thus furnishing a striking instance of alternation of generation. The connection of the Berberry with the prevalence of rust in Wheat was noticed by Sir Joseph Banks as long ago as 1806. In the commune of Genlis (Department of Côte d'Or), a railway company not long since planted a Berberry hedge on one of its embankments; immediately the crops of Wheat, Rye, and Barley in the neighbourhood became infested with rust. The remonstrances of the farmers caused the appointment of a commissioner to inquire into the subject, who, after a full inquiry, reported that wherever the Berberry is planted the cereals are more or less attacked by rust; where they are absent the crops are free from disease, and that the planting of a single Berberry bush is sufficient to produce the rust where it has never appeared before.—(Nature)

### CELERY CULTURE.

I HAVE to provide for an average consumption of ten heads of Celery a day for at least five months, and such a consumption, I hope, is large enough for me to lay claim to some knowledge of the cultivation of this favourite vegetable; I therefore purpose detailing the course of culture which I have found successful, though I do not assert that it is the best, but from several years' experience I venture to say it will not disappoint those who may follow my directions.

The first consideration is the time and method of sowing the seed. I generally sow at three different times, and these sowings provide for the early, the general, and the late crop. The first crop should be sown about the middle or end of February, the next about the second week in March, and the last sowing may be deferred until the middle of April.

The first sowing being the smallest, and made at an early season, the seed is generally sown in shallow boxes or seed pans in gentle heat. Whether they are placed in a vinery, pit, or dung frame, the young plants come up equally well. They require to be thrice transplanted, and must be grown under protection, and finally hardened-off before going into the trenches. The next sowing, being the largest and most important, it is as well to make a good preparation for it. As it is, like the first sowing, benefited by gentle heat, I put up a 2-feet bed of spent hotbed manure, and either place a single-light frame on it, or the plants are raised under hand-lights. If the former mode be adopted, fill the frame with manure to within 6 inches of the glass, cover the bed with an inch of fine soil, and sow the seed, dividing the sows by a lath or stick placed across the frame. For the latest crop, the seed may be sown in good garden soil without protection.

Great care will be necessary, especially with the first crop, that the plants are not drawn up weakly by standing too long in the seed pan; they must be kept close to the glass, and not have too much heat. The second and third crops require but once transplanting before going into the trenches. In what I may call the nursery beds the cultivator has the opportunity to prepare sturdy plants, and provide for their safe removal to the trenches. I have been very successful by the following plan:—Select a border where the plants will not be exposed to the full force of the mid-day sun, and will likewise be sheltered from the coldest winds; level and beat the soil firm; on it place a layer of rotten manure 4 inches thick, beat this down firm and level; cover it 1 inch thick with finely-sifted light soil; water, and make the surface very even; and prick out the plants 4 inches apart each way, and every twelve rows leave a space of a foot wide to afford a pathway for attending to the plants. In the first few days the plants will be the better of a few green boughs laid across the beds on poles, both for shelter and shade, until started, when they will be as well without them. They must now have careful attention as to watering, and be otherwise encouraged to become good plants. A small black snail sometimes attacks the plants, and will eat many off in a night; however, a timely application of finely-sifted quicklime and soot will check its ravages, and do the plants no harm.

Simultaneously with the raising of the plants, the ground on which to grow the crop should be selected. If the crop is a large one, and grown on the single row or narrow-trench system—a plan which I very much prefer, a good space of ground will be required. Some have the trenches 4 feet, others prefer them 5 feet apart; but as I have in view the cropping of the ground between the trenches, I find 6 feet, measuring from centre to centre of each trench, a convenient distance, and by taking off 8 inches on each side the trenches will be

16 inches wide. The depth may vary according to the season at which it is intended to use the Celery. The early crops require a trench deeper than the late crops; beginning with 1 foot and diminishing to 6 inches I have found answer well. After taking off the trenches, the space of ground available for cropping will be 4 feet 8 inches wide. Some may prefer the trenches both wider and deeper, but I have found the above large enough to grow a fair-sized solid-stemmed plant, which is preferable to a large pitted one that will not keep well. If it is intended to crop the ground, the trenches should be dug out early in March and filled with good rotten, moist manure, treading it down and covering it with 3 inches of soil. Afterwards dig the ground between the trenches.

I generally associate the Spanish Cardoon and Musselburgh Leek with the Celery crop, devoting to each a trench, which may be dug and cropped at the same time. The seed of the former is sown in the trench in the middle of April, and the latter is transplanted from a bed of seed sown in March on a warm border.

If it is possible, I arrange for the trenches to run north and south; and as I do not agree with earthing-up Celery—the earliest crop excepted—as it grows, there is ample time for successional crops of Peas between the trenches; and if the sowing is arranged so that the first Peas to come off shall be where the first Celery is to be dug up, there will be plenty of time afterwards for blanching the Celery for use. Celery delights in an abundance of moisture at the root, as well as in shelter and partial shade, and the Pea crop is an excellent means of providing the latter two, and of preventing too rapid evaporation.

Having now completed the arrangements necessary for the well-doing of the crop, planting out, which will generally be in June and July, may next be considered. The plants will then be about 8 inches high, stout, and strong. If they have been planted as previously advised, it will only be necessary to run the spade between the plants both ways, cutting through the manure, and then by pushing the spade underneath the plants between the soil of the border and manure, each plant will be taken up with a good-sized ball full of roots, and can be carried to the trench in safety. If this work be performed by a painstaking, active hand, the plants will scarcely suffer from their removal. In planting, draw a drill along the centre of each trench wide enough to take the roots comfortably, water well, and all is finished.

In its wild state Celery grows by the sides of ditches and in marshy places, and in its cultivation water must be supplied most liberally. The soil should be frequently stirred about the roots, and when the plants have arrived at about half their full growth examine them, pull off the suckers, and give just sufficient earth to keep the plants steady. In order to keep the foliage from spreading too much, and to protect the plants from damage through working about them, procure a bundle of common rushes, and tie one loosely round each plant; and the same means may be adopted to hold the plants together at the time of earthing-up. The rushes may be left on, as the moisture of the soil soon causes them to decay, and sets the plant at liberty.

Before earthing-up I prefer waiting until the plants have nearly completed their growth, for by doing so better attention can be paid to watering, the plants have more liberty to grow, and by having a free circulation of air always about them the leafstalks become hardened and the outer skin tougher, enabling them to withstand excessive wet and the attacks of wireworm and other enemies better than they would otherwise do. When Celery is grown for use in September and October, blanching by frequent earthing-up is the only way of having it tender at that time. Of course it will be understood that all the crop must be finally earthed-up before winter sets in, and afterwards, if severe frost occur, protect the top with litter; and should there be any danger of the frost penetrating through the earth to the Celery, a quantity should be dug-up, and stored under cover in sand or earth.

The principal enemies to the Celery crop are the wireworm, which attacks the stalks under the soil, and the maggot in the leaf. To check the attacks of the former, I have found it a good plan to place sifted coal ashes, coarse sand, or road drift round the plants as earthing-up goes on. As to the maggot, I do not remember ever having escaped one season without it. I have watched for it in July, and kept it in check by hand-picking, which I find the best remedy.

I am somewhat at a loss to know what varieties to recommend for cultivation, as I am sorry to say that I cannot often

net one sort twice alike, and I have tried many. Cole's Crystal White and Seymour's Solid Red of years ago, are good standard sorts if they can be procured true. I think they are not excelled by any recent introductions. Those I have grown lately are Henderson's White Conqueror for the earliest crop—it is very tender and not so apt to run to seed as some sorts;—and Veitch's Silver White as a second early. This is a very solid crisp Celery, which as yet is very true, and this season is the best-flavoured sort I have cultivated. Reid's Matchless Red is a thoroughly good-keeping variety, and fit for winter use; while Turner's Incomparable Dwarf White for a late crop is not, I think, even equalled; it keeps well, and is longer than any other in running to seed in spring. I have had this variety good up to the middle of May.—Thos. Record, *Lilleiden*.

and very sweet-scented. This received a first-class certificate. Mr. Osman, gardener to H. Holland, Esq., exhibits a new Solanum, from Japan, with small roundish, pointed, shining leaves, and a Maple, also from Japan, with chart-coloured leaves. Mr. Turner, of Slough, contributes baskets of Mrs. Heady Tricolor Pelargonium, and Mrs. Turner Azalea, a very fine variety, and takes first-class certificates for both; while Mr. W. Paul has baskets of *Enonymus flavescens* and Waltham Bronze Pelargonium; the former, a very effective yellow-leaved variety, received a first-class certificate. A similar award was made to Cupressus Lawsoniana erecta viridis, from Messrs. Walter and Son; to *Demonorops plumosa* and *Peristrophe angustifolia* aro-variegata, from Mr. Williams, of Holloway; and to *Dracena trifoliata*, from Messrs. Rolison.

We must add that the conservatory presents a more than usually gay appearance this season, numerous Hyacinths, Azaleas, and other plants forming gay masses of bloom.

## ROYAL BOTANIC SOCIETY'S FIRST SPRING SHOW.

This opened yesterday and will be continued to-day; and it is a well-arranged and, for this season, gay exhibition, the only drawback to which is, that it is held in a long narrow tent adjoining the conservatory, an arrangement which is not very comfortable in this month of keen north-easters.

Of greenhouse plants in flower Mr. Wright, of Avenue Road, St. John's Wood, has a collection rather different in brightness containing Heaths, among which is *Elegans* in good bloom, three Azaleas, and a large plant of *Boronia pinnata*, not yet well covered with flowers. Mr. Wilkie has a collection in which are *Rhynchospermum jasmimoides* and a standard Azalea *Iveryana* in fine bloom, *Euphorbia* *Eclipse*, two plants of *Plajias grandiflora*, and *Franciscana calycina*. Mr. Wheeler, gardener to Sir F. Goldsmid, Bart., Regent's Park, has fine specimens of Azalea Prince Albert and Triumphans, and well-bloomed plants of *Chorozema cordatum*, *Aphelexis macrantha purpurea*, and *Acacia armata*, together with a small plant of the pretty rose-flowered *Boronia serrulata*, the whole forming a neat group.

Messrs. Rolison, of Tooting, have a charming miscellaneous collection, containing *Nandinas*, *Cypripediums*, *Cologues totida*, *Leucateas*, *Ondoglossums* in fine bloom, the brilliant scarlet *Sophronis coccinea*, the new *Dracena* *Gilliflowers*, and several Palms. Along with this collection, and lending it great brightness, is a large basket of their new *Euphorbia hyacinthiflora carminata*, which was awarded a first-class certificate.

Mr. W. Paul, of Waltham Cross, has about a score of Camellias in 5-inch pots, consisting of several fine varieties; likewise an extremely interesting collection of Ivies, several of which are well worthy of special mention, and a lot of the beautiful new Double Scarlet Thorn; also of his new Rose, Princess Christian, which takes a first-class certificate. Mr. Wright, of St. John's Wood, well supplied with flowers of the pretty *Hortia japonica*. Messrs. Paul & Son exhibit a splendid collection of Roses in pots, of which Marie Baumann is most beautiful; Horace Verneil, Princess Mary of Cambridge, and Elie Morel, are also fine.

Of forced trees and shrubs, collections come from Mr. Wheeler, Mr. Wright, and Mr. Wilkie, and consist of *Hydrangeas*, *Lilacs*, *Sloes*, *Weigela rosea*, *Gueldeas rosea*, and *Rhododendrons*.

Among collections of forced hardy herbaceous plants, Mr. Ware, of Tottenham, has a tastefully-arranged group of *Dicentra spectabilis*, *Double Yellow Wallflowers*, *Gilly of the Valley*, *Hortia japonica*, *Trillium grandiflorum*, the large white flowers of which are very showy, and the variegated-leaved *Crocus Imperial*. Another group from Mr. Wheeler, contains, besides several of the plants above mentioned, *Polyanthuses*, *Solomons Seal*, and *Saxifraga rubra*.

Azaleas in 8-inch pots come from Mr. Wright, Mr. Wheeler, and Mr. Wilkie, and are for the most part fairly bloomed plants of well-known varieties.

Of Hyacinths Messrs. Rolison have a very even lot of thirty-six with excellent spikes; whilst among amateurs Mr. Searle, gardener to C. Steel, Esq., Hammersmith, has good spikes of Charles Dickens, Baron von Teyl, and some others. Mr. Wright and Mr. Wheeler also exhibit twelve. The only exhibitor in the nurserymen's class is Mr. C. Edmonds, of Hayes.

Cyclamens form a gay bank of bloom. Those from Mr. James, of Isleworth, Mr. Edmonds, and Mr. Stevens, of Ealing, include some very fine and bright-coloured varieties. Mr. James also sends a very fine specimen plant of a rose-coloured variety. Messrs. Dobson likewise have Cyclamens and a small collection of *Polyanthuses*. Mr. Edmonds has some very fine Chinese *Primulas*, and Mr. James and Mr. Tibbles have very well-bloomed plants. Good *Cinerarias* are shown by Mr. James and Messrs. Dobson, and the former has an excellent specimen plant. Of cut Camellias Messrs. A. Henderson, of Fine Apple Place, have a fine stand; and there are stands from Mr. Wilkie, Mr. James, Mr. Joseph Wheeler, and other amateur growers.

Mr. Ware sends the only collection of twelve *Lilacinas* plants, and a very pretty one it is, the whole in pans 8 inches across. Among them we noticed *Tritelesia uniflora*, *Silla bifolia*, *sibirica*, and *præcox alba*, and *Erythronium dens-canis*, as the most effective. Mr. Ware likewise exhibits two charming baskets of *Primula*. Mr. Parsons has a new large-flowering *Mignonette*, called *Eximia*, very com-

## FRUITING OF THE ELM.

The following bears upon this subject. In drawing the plates in illustration of your "Wild Flowers of Great Britain," I found it impossible to obtain perfect fresh fruit of this tree. The late Mr. James Ward, of Ely Court, Staplehurst, took special interest in our native trees, and collected fruiting specimens of every British tree, except the Elm, for the above work. This tree he never found in perfect fruit, after searching for many years, neither could I obtain it from any of the numerous subscribers to the work, who are in the habit of sending specimens to be figured.

Of all trees about London, the Elm (*Ulmus campestris*) is the most common; it abounds in the parks and hedgerows everywhere, yet I have never seen it produce any fruit other than the imperfect membranous seeds referred to by some of your correspondents. In short, after repeated trials, I was totally unable to obtain a fresh British specimen of the perfect fruit, and the plate in your "Wild Flowers of Great Britain" was consequently published without it, or with leaves and flowers only.—W. G. SMITH.

## THE NOMENCLATURE OF CONIFERS.

There is a good deal of confusion on this head in nursery gardens of the highest standing, and consequently amongst amateurs. I do not refer only to recognised synonymy. These are too common in zoology as well as in botany, but must continue until we have some central scientific society, of which all nations will recognise the authority, to fix the nomenclature. In this way we find in the catalogues Abies Albertiana, Albertii, Williamsonii, taxifolia, and Mertensiana, all given as synonyms for the Fraser River Hemlock Spruce. Abies or Picea lasiocarpa appears also as Lowii, Lowiana, and Parsonii; Abies or Picea cephalonica as Apollinis; A. Smithii also as Khutrow and Morinda. But the trade do not agree to what species these synonyms, confusing enough in themselves, are to be referred. One leading firm sells as P. amabilis what another calls grandis, and vice versa; a third sells lasiocarpa as grandis. I cannot find amabilis or grandis named at Kew. Again, one of the most beautiful Conifers at Dropmore is called by the gardener, Mr. Frost, Abies taxifolia. I never saw it anywhere else. In its foliage and appearance it is between A. Douglasii and A. Menziesii. It is very unlike A. Albertiana, of which taxifolia is one of the recognised synonyms, but I find in one of the many trade catalogues I have searched, taxifolia given as a variety of A. Douglasii, which I presume is this tree.—C. W. D.

## NAMES OF PLANTS.

A FRIEND at our house last week was discussing the question, whether in the *Phlox Drummondii* the termination should have two's or only one; of course the meaning of the thing is *Drummond's Phlox*; and this puts the matter in the "genitive" or "possessive" case, as we say in grammar. So we turned to the Latin grammar, and we found that Latin nouns ending in *us* made *i* in the genitive, and when ending in *ius* made *ius* in the genitive. Our puzzle then was to know whether *Drummond*, when rendered into Latin, should be *Drummondus* or *Drummondii*. My friend insisted that the only rule in making new Latin words, as these plants' names really are, is to go by sound. It will depend on whether the accent is on the first or second syllable. If *Drummond* it should be *Drummondus*, and of course *Phlox Drummondii*; but if *Drummond*, then *Drummondus*, *Drummondii*. He thought that the first was most likely to be the proper sound of *Drummond*, and therefore *Phlox Drummondii* would be correct.

I could only say it seemed right, but that authorities always used the two's. We compromised the matter by agreeing to drop the Latin name altogether in our common conversation, and always say merely Drummond Philox.

And this brings me to ask, Why not use these common names oftener than we do? To be sure, some of them are worse than the hard names I would avoid. Love-lies-bleeding, Robin-run-in-the-hedge, Joseph's Coat, Rag-tag-and-bobtail, and such expressions, are worse than Warsawiczii, which our gardener pronounces "worst kind of whisky I," or any other tremendous effort of the Latin tongue.

But there are names not intelligent or rough which one might use; and where there are none, I do not see why some one in authority might not make them so as to be generally acceptable. I remember, while a reader of Downing's "Horticulturalist," that he gave the name of Golden Bell to the Forsythia on its first appearance. It has proved generally acceptable, and we have only to picture to ourselves what we should all be, twisting our mouths to say Forsythia viridissima on every occasion, in order to thank Downing and all those good friends whose foresight keeps us out of all these evils.

I suppose I am treading on dangerous ground, and that you, Mr. Editor, will want to differ from me. I fancy I have heard all you will want to say before. You would keep together "the harmony and unity of the science. A Frenchman, a German, and so on, all know Latin, and thus know what is meant at once on reading the Latin word." All this is well enough for botany. I say let there be botanical names by all means; but let us have garden names as well. My two girls are Charlotte and Jane, respectively; but it seems more home-like, and does, I think, bring them nearer our everyday hearts, to call them Jenny and Lottie; and so I am sure we can appreciate Pansy, Gilliflower, and Mignonette better under these names than we ever could as *Viola tricolor maxima superba*, *Roseda odorata*, *Matthiola annua*, or the sweetest Latin sound ever uttered. I think so.—(*American Gardener's Monthly*.)

#### SHRUBS FOR PLANTING NEAR THE SEA.

For the information of your correspondent (see page 233), I give the result of my trials. The ground I have planted within the last seven years is close to the coast, and at an elevation of 200 feet above the sea level. The soil is sandy loam, and the site is exposed. I have planted almost every variety of tree and shrub, and lost many hundreds. The following have flourished well, and are now fine, healthy, vigorous trees:—*Pinus austriaca*, *Larix*, and *Morinda*; *Picea Pinus*, *Menziesii*, *obilis*, *Fraseri*, *Nordmanniana*, *grandis*, and *balsamea* (*Balm of Gilead*); *Cupressus Lawsoniana* and *macrocarpa*; *Cedrus atlantica* and *Deodara*; *Araucaria imbricata*; *Junipers*, *Berberis*, *Cerasus Laurocerasus*, *Hollies*, *Eucalyptus*, *Arbutus*, *Yew*, *Laurostictus*, *Daphne*, *Rhododendrons*, *Cotoneasters*, *Wellingtonia gigantea*, *Thuja gigantea*, *Thujopsis borealis*, *Beech*, *Elm*, *Sycamore*, *Acacias*, *Thorn Heath*, and *Kalmias*.

Any further and more particular information I shall be glad to give.—*DELTA, Scarborough.*

I HAVE experienced great difficulty here (by the sea) during the last six years in getting trees and shrubs to stand the heavy gases. "G. R." will find the following satisfactory:—viz., *Eucalyptus japonicus*, common Holly, Evergreen Oak, Bay, *Ligustrum ovalifolium*, *Tamarisk*, Green-leaved Box, *Aristotelia Maqui*, Chinese Arbor-Vite, *Pinus austriaca*, Double-blossomed Furze, and *Laurostictus*. These grow about 100 yards from the sea, and upon an elevated spot, where they received no protection, except with a few straw hurdles during the first winter after planting; afterwards they were left to care for themselves.—*A. F. GODWARD, Nurseryman, Southend, Essex.*

#### THE ROSE WEEVIL.

CAN anyone tell me of a method to prevent the attacks of the Rose weevil on the young shoots of my Roses? Do you think a little soot, or soot and lime mixed, put on the soil at the base of the stock would effectually check the weevil's climbing up the stem? Last year I killed a great many of these pests at night by the help of a lamp and a sheet of newspaper, but in several cases damage had been done before the enemy could be found at his work and secured.—*A SUBSCRIBER.*

[We have no doubt that soot and lime at the base of the stems of the Roses, will materially assist in preventing the attacks

of the Rose weevil; but we should be glad of the experience of any of our correspondents who are Rose-growers, as it is very difficult to prevent the weevils from attacking Roses, and it is very important to prevent their ravages, if it is possible. Hand-picking begins to be a difficult and tedious point when hundreds of Rose trees have to be looked over.]

#### STRAWBERRY CULTURE.

THE numerous complaints which are made about Strawberry plants not bearing make us anxious to know the best mode of treatment to insure a crop. Having had many years' experience in different counties, I will here explain the mode of treatment under which I have always found Strawberries succeed best, and seldom known them fail.

In the first place, the ground intended to be planted should be well trenched—say from 18 inches to 2 feet deep, and, if convenient, some rough or long stable dung should be put in the bottom of the trench. Let this be done as early in the spring as convenient. After the ground has settled, a good coating of decayed stable dung should be dug or forked in, and before planting the space should be well trodden and levelled, selecting a fine day for the operation. The more firmly the ground is trodden, providing it does not cling to the feet, the better. It should then be marked out in rows 2 feet apart, and holes dug to receive the plants. A spadeful or so of good fresh soil, such as fibrous loam and one-third rotten dung, or turf pared from the roadside, I find will suit them very well. The plants should all be layered in small pots, as they will not then suffer from removal at planting. When the pots are filled with roots the planting should be done, and the earlier the better, as by planting early a year is gained in fruiting, and I have found the plants bear a very fair crop the following spring.

On the plants being put in, the soil should be made firm by treading round them, and watered when required. As soon as they begin to grow the soil should be kept stirred, and all runners cut off as they appear.

With frequent waterings and manure water occasionally, they will be good-sized plants towards the autumn. They should then have a good mulching of rotten stable dung before frost sets in, as that preserves them from freezing, besides acting as a manure when washed in by rain.

In the spring, the plants should be again carefully looked over and made firm, should there be any loose, as on their being firm in the ground sturdy growth greatly depends.

Some growers recommend cutting off the foliage after all the fruit is picked. I have never found any benefit from the practice, except where the plants were very crowded and the foliage very much drawn up, in which case, if the leaves are cut and some of the plants taken out, those left make much better foliage, and ripen the buds for bearing in the following year.

As soon as the Strawberries show bloom in the spring, the flowers ought to be thinned out where too numerous, for the plants should not be allowed to bear too much the first year. All runners should be cut off, for where fresh plants are wanted, it will be much better to plant a few on purpose to establish runners than to take them from the beds, which are often destroyed more by treading on the plants in layering the runners than in picking the fruit; but if a distance of 2 feet be allowed between the plants, there will be just room enough to pass between them, to clean them or to gather the fruit, without treading on more than are gathered, which is often the case where the plants are closer together.

If these directions be carried out, and the plants be kept free from weeds and runners, they will require but little trouble and expense after planting.—*A SUBSCRIBER, Lancashire.*

#### LOPEZIA MYRTIFOLIA.

DO any of your correspondents know a fine winter-blooming plant, *Lopezia myrtifolia*? A few days ago I saw some nice plants of it decorating a nobleman's conservatory, and was told that it had been flowering there since midwinter. It was struck from cuttings last summer, and treated in the ordinary way for young *Fuchsias*; it is, therefore, easily grown. It was a most useful plant in the place, and would be valuable for bouquets or even for table-decoration. A little distance off, from its foliage and the colour of its flowers, it appeared to be not unlike that favourite little *Fuchsia*—*microphylla*, though on a closer inspection it was very different; its flowers were

more numerous, and the habit of plant was more dense. It is a plant well deserving of more cultivation.—R. M.

[All the *Lopezias* at present known are natives of Mexico. We do not know a species called *myrtifolia*. Was it not a mistake, and ought it not to have been *macrophylla*? This is portrayed in the "Botanical Magazine," t. 1724, and is so like a *Fuchsia* when looked at from a distance, that the German gardeners call it *fuchsoides*.—Eds.]

### CHIRYSANTHEMUM CULTURE.

LAST year I grew a splendid lot of about five dozen, all in pots, without the least solid manure. I took off the cuttings about the middle of June, struck them in a cold frame, and on the 12th of July transferred them from the frame to their blooming pots. They were shaded for a few days, and then placed out of doors in the full blaze of a July sun. Each plant was topped once, about a week after its transference from the frame. Water was given as needed, once, twice, and sometimes three a-day.

By October 10th, the day on which they were removed into the house, they were all large, but manageable plants, thickly set with blooms, feathered to their base, and every leaf of the most beautiful green. I was surprised and pleased with my success. My neighbours looked in, and a representative of the press looked in, took notes, and gave them to the public. The general remark was, "How beautifully you have grown them! What do you give them?" To this my invariable answer was, "Chamber slops and nothing else." I believe some were incredulous, seeing the quantity and quality of the bloom.

Seeing the effect of these slops, I have during the past winter poured this liquid in quantities among my *Roses*. Already I see the result in quickly-swelling and plump buds.

I should mention that I cut blooms of *Queen of England*, and *Alfred Salter*, fully 5½ inches in diameter. *Annie Salter*, too, was particularly well filled up. The soil used was rotten turf, nothing else.—W. T.

[You have excellent varieties, and have been very successful in their culture. You ask whether the Japanese varieties will succeed out of doors? Nearly all of them are late-flowering, and only suitable for the greenhouse and conservatory. The only one that will bloom well in the open ground is *James Salter*, which is very early and very free-flowering. The culture is not different from that of the other varieties. Among the Chinese *Chrysanthemum* you name, the best for pot culture and specimens, are *Beethoven*, *Pink Perfection*, *Rival Little Harry*, *Rotundiflorum*, *John Salter*, *Princess of Teck*, *Virgin Queen*, and *Lady Harding*. *Hetty Barber* is the same as *Cleopatra*, and *Miss Mary Morgan* the same as *Pink Perfection*.—Eds.]

### MANURES—LIQUID—No. 2.

LIQUID manure, from the ease of its application, and the quickness with which it is absorbed, is for many purposes one of the best forms of administering food to plants, especially in those cases where immediate action is desirable. It comes to our hands in various guises. Nature offers her most precious contribution in the form of urine. Liquid manure can be compounded, too, in different ways and from a variety of materials, such as soot, guano, sheep, cow, or deer dung, and a number of other fertilising agents which it is unnecessary to name here, and it is also universally placed at the disposal of rich and poor in its most familiar form and greatest abundance as house sewage. To the value of this the public mind appears to be gradually awakening, after a wasteful carelessness which has gone on for many generations; the sewage polluting the clear waters of our streams, lying exposed in gutters under the very windows of our cottages, impregnating the surrounding air with its fever-laden breath, poisoning the very water we drink, and thus becoming a source of disease where, if rightly used, it ought to be one of our greatest blessings.

Sewage, then, it must be granted, ought to rank high in our list of manures, for to the use of no other fertiliser can so many good reasons be assigned, as to this, the commonest of all. Charged with those rich gases so necessary to vegetation, and yet sufficiently diluted to be used as it is drawn from tank or cistern, it is not only admirably adapted to increase the yield of all growing crops, but it may be used with perfect safety by persons entirely ignorant of its chemical properties. It is best stored in a close cistern having a suitable pump

attached, as all nuisance is avoided, no evaporation can occur, and its strength is therefore retained. If this cannot be done, and it is at all exposed to the air, some fixer or deodoriser must be used. Of the many agents available for this purpose, powdered gypsum is one of the best. Thompson, in his "Gardener's Assistant," says, "The power of fixing ammonia which gypsum possesses, will only prove effectual when water is present in sufficient quantity. Accordingly it is most advantageously used in the case of liquid manure; but for fixing the ammonia of solid manures it does not answer nearly so well." This sulphate arrests the escape of the ammonia, and so changes its nature that exposure to the air does not immediately affect it, but as all exposed manure, whether liquid or solid, is undoubtedly in danger of loss, it is well to use it as quickly as possible.

In the application of solid manure to the soil, it is certain that it can never be so evenly distributed as a liquid manure, yet although this fact is self-evident, it is very rarely that the utility of the one is at all affected by the other. Solid manures are, as a rule, applied to the soil in the absence of crops, by which means the ground is in most instances enriched sufficiently for ordinary crops, but in the case of such gross feeders as most of the Cabbage tribe, Celery, and the like, the use of liquid manure during their growth is highly beneficial. If given with a lavish hand, not once, but constantly, it tends to promote the fastest and quickest growth so desirable, and which gives the sweet crispness to Celery and salading, the curd-like whiteness to Cauliflowers, the freedom from "strings" in Turnips, and assists in the development of all those high qualities so essential in first-class vegetables. With the professional gardener it is not quality *versus* quantity, but quality and quantity are intimately combined as possible.

Liquid manure or manure in solution, is best suited for use among growing crops, for owing to its liquid state it is immediately absorbed by the spongioles of plants, and its beneficial action is quickly apparent. Fruit trees, too, are much benefited by frequent waterings of it while the crop is swelling.

"See what my black water has done," said a person to me once, as he pointed to some fine bunches of Grapes hanging on a Vine which had been fed with rich liquids. The exercise of some caution is, however, requisite in regard to its use among fruit trees, because hardly any monster specimens of fruit can be forced to their abnormal dimensions without flavour being sacrificed to size. Our aim here should therefore be to assist Nature rather than to force her; and if fruit trees, by the application of rich stimulating liquids to their roots, are enabled to thoroughly mature their crops of fruit so that it may attain its highest excellence in point of size and flavour, without the tree evincing the slightest sign of exhaustion in root or branch, nothing more can be desired, and this is just the point to aim at.

Some judgment and experience are requisite to enable one to decide upon the exact quantity of liquid manure to be given. If the liquid be applied occasionally from the time the fruit begins to swell till it approach ripeness, carefully watching the progress of the fruit, and letting that be the guide as to the quantity to be used, very little harm can happen, especially if it be remembered that the use of liquid manure is not recommended to promote wood growth, but simply to assist the tree in bringing its crop to maturity.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

### THE FIG AND ITS CULTURE.—No. 4.

*Trees in Pots.*—The Fig succeeds extremely well as a pot plant, and bears fruit even more profusely when so cultivated than when planted out under any form. The plant is naturally a gross feeder, and, if allowed, becomes exceedingly luxuriant and rapid in its growth, producing gross watery shoots, which bear but little fruit, especially when in a young state. Plants in pots are entirely under the control of the cultivator, and may be moulded at pleasure. The prettiest and most natural form for the plant, and one which answers exceedingly well in inducing fruitfulness, is that of dwarf standards, having a clear stem of from 8 to 12 inches or more in height, as fancy may dictate, from the surface of the pot to the commencement of the head. The head or branches of the plant may then be trained after whatever fashion may seem most desirable—flat-spreading, bush, or pyramidal. The low bush form may also be adopted, but it is not nearly so handsome or so satisfactory as when the plant is on a clean stem of some few inches in height.

To explain fully the way in which a Fig tree is so formed or

trained, it will be necessary to describe the operations fully in the various stages of the plant from the cutting state, as represented at page 107. The cutting being struck and potted-off, it should, in its growth during the first season, be confined to the formation of a single stem, which, when it reaches the required height, should have the growing point pinched out; this will serve to give it greater strength, and probably induce the formation of two or three shoots. All side shoots should be resolutely pinched back. After the fall of the leaf the plant should be cut back to whatever is the proposed height, and when the shoots begin to grow, four or five should be selected to form the head. These, as they grow, should be regularly pinched. This being the third season, the plant will have attained a size something similar to that represented by fig. 11, which, during the succeeding winter, should have the shoots pruned back as represented by the transverse lines. By pruning back thus, the plant is kept in a compact and bushy condition.

The tree being, as it were, now formed, no further special directions are required. The pruning of the plants must be conducted henceforward according to the principles laid down at page 162—that is, either for the production of fruit simply, or for the further enlargement or formation of the plant. The larger and older the plants become the less winter pruning, &c., will be required, that portion of the labour being then better performed by pinching the young shoots in summer.

**SUMMER PINCHING.**—This is one of the most important of operations in connection with the cultivation of Figs, especially of those in pots. It is one upon which success greatly depends, and it is one of the most simple and easy to perform, requiring the exercise of no faculty, save incessant attention and perseverance. It is an operation which can be performed at any time; whilst looking-on and admiring the plants, or having a friendly chat, the finger and thumb could be usefully employed in nipping out the soft-growing tips of the shoots. It is a sensible way of employing one's hands when being spoken to, for to many gardeners of the diffident sort they are unaccountably in the way at times.

In pinching, it is only necessary to break off or pinch the very tip of the shoot; at least, pinching should take place before it is required to do more than this. It is always bad policy to allow leaves to expand and then to have to destroy them. It is causing a needless waste of the energies of the plant. In pinching the shoots of young plants, due regard must be paid to the formation of the tree, &c. The shoots of these should, therefore, be allowed to grow a few inches before being stopped, the object being in this instance not so much a repression of vigour as a concentration of forces, or a formation of more shoots. Fruiting trees on walls, or trained to trellises in houses, should have their shoots pinched when they reach 4 or 6 inches in length, and every subsequent formation during that season as closely as it is

possible to do so. Bush trees planted out or in pots should, when they have attained the desired size, &c., have the shoots pinched very closely, say at about the length of 2 inches, for the first growth, and all subsequent shoots as closely as possible. This must be adhered to vigorously and determinedly, as here it is a repression of vigour that is aimed at. This continuous pinching (and while the plants are growing fast they will require looking to almost every day), seems to induce fruitfulness to a considerable extent; those shoots which are pinched showing fruit (the second crop) at the axils of almost every leaf, whilst those left unpinched and allowed to grow to their full extent much more rarely do so. Moreover, incessant pinching, by preventing the full development of the plant, thereby checks the natural tendency to excessive vigour which it has in a young state, and promotes fruit-bearing. Thus, while pinching directly affects the production of the second crop of fruit, it also indirectly, by causing the production of more stubby, short-jointed wood, which ripens better, affects the production of the first crop of the following season. Some allowance must, however, be made in respect to the different habits of the plants. Some varieties, such as the *Angélique Noire*, are of a much more robust habit of growth than others, and can scarcely be pinched so closely. The *Oeil de l'Éclair*, again, is of a very stubby nature, and requires scarcely any pinching, whilst the *Brown Turkey* is of an intermediate form, somewhat straggling in habit, to which the foregoing remarks will most correctly apply.

In a moderate-sized houseful of Fig trees in pots, an hour or two every day may be very profitably employed in pinching; it is a very pleasant pastime, and, unlike pruning or any other operation, a mistake in regard to it can scarcely be committed.

**RINGING THE STEM.**—By this is meant the cutting off a ring of the bark round the stem. It has the effect of checking excessive vigour and thereby inducing fruitfulness, and may be resorted to in extreme cases. It may be called an old and barbarous practice. It has, nevertheless, the merit of being at times efficient.—A. B. C.

## NOTES AND GLEANINGS.

MR. W. EGERTON HUBBARD'S PRIZES of £5 and £3 respectively, for the best essay on Cottage Garden management, and the best essay on Window Gardening, have been awarded, the former to Mr. E. W. Badger, of the *Midland Counties Herald*, Birmingham, and the latter to Mr. H. Buttery, of Clapham. The essays on Cottage Garden management, from which Mr. Badger's was selected, were thirty-four in number; and those from Mr. W. P. Ayres, Nottingham, and Mr. E. Luckhurst, Egerton House Gardens, Kent, were highly commended; while those from Mr. D. T. Fish, Hardwicke House, Bury St. Edmund's; Mr. A. Meikle, Read Hall, Whalley; Mr. P. Grieve, Cufford; and Mr. W. Earley, Digswell, were commended. On Window Gardening there were eighteen essays, that from Mr. D. T. Fish being highly commended, and those from Mr. E. Luckhurst, Egerton House Gardens; Mr. A. Meikle, Read Hall; and Mr. W. Moss, Shelfield, Wickham, Hants, were commended.

—HER MAJESTY, accompanied by the Princess Louise and the Princess Beatrice, visited Mr. WILLIAM PAUL'S EXHIBITION OF SPRING FLOWERS, at the Royal Horticultural Gardens, South Kensington, on the 21st inst. Bouquet of Roses were presented to Her Majesty and the Princesses by Master F. and Misses Ella and Emily Paul.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

SOWING seeds, planting trees and shrubs, and laying-out dressed grounds, must now be carried on with speed; at the same time the destruction of insects must not be neglected; any inattention at the present time will cause much mischief during the summer. Make a new plantation of *Artichokes*, if not already done. The preparation for planting *Asparagus*, consists in deeply trenching the ground, and in burying in the bottom of the trench a considerable quantity of raw vegetable matter, such as refuse vegetables, Cabbage stalks, weeds; or, if they can be obtained, half-rotten leaves with which a little manure has been blended for linings in the previous year, are very good. The ground on which *Celery* has been grown may be prepared in a special way with a view to its being laid down with *Asparagus*. In taking up the *Celery* for use, the bed (on the Scotch system) is broken up to a great

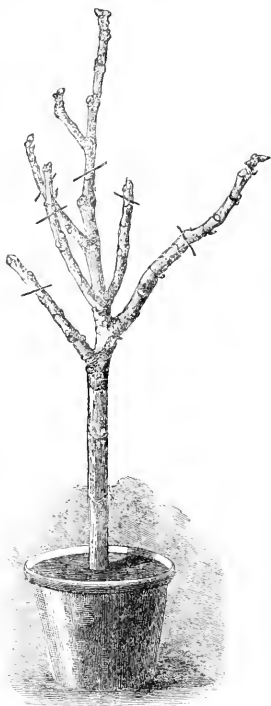


Fig. 11.

depth, and the alleys with it, and thrown into a ridge, which ridge remains fallow until planting time, when it is merely levelled for planting. It should not be planted until the middle of April. The old beds should be forked up and top-dressed as before directed. Sow Windsor and Longpod Beans for succession crops. Another sowing of Broccoli may now be made. Sow *Brussels Sprouts* for an autumn supply. Sow *Early Horn Carrot*. Prick out *Cauliflower* plants from the seed boxes, and sow for a full crop. Give air to *Cucumbers*, if the weather is mild, during a part of every day; and provided there is a good heat in the beds, the frames may be left with a little air at night; great care must, however, be taken to keep up the requisite temperature. Another sowing of *Kidney Beans*, in pots, may now be made. Sow *Lettuce* in the open ground, and plant-out in sheltered situations that raised in frames. Sow successional crops of *Peas*, of various kinds, if not done during the past week. Sow also *Cabbage*, *Savoy*, *Radishes*, *Herbs*, *small Salads*, *Chives*, *Fennel*, *Nasturtiums*, and most other culinary crops not already in.

## FRUIT GARDEN.

Finish planting fruit trees, and tie them up to stakes to keep them from being blown about by the equinoctial gales. Train wall trees, and protect their blossoms by a covering of bunting, net, or straw ropes, &c. Grafting Apples and Pears may now be proceeded with.

## FLOWER GARDEN.

This is a good time to sow a good collection of annuals, whether hardy or tender. For the latter a slight hotbed is requisite. Choice hardy annuals should be sown in patches, and each patch covered with a garden pot, taking care to remove it during the day, when they are coming up, and to replace it at night. If any rude or unimportant shrubby borders require a little gaiety, and business presses, a mixture of some of the hardier sorts might be made, such as *Collinsias*, *Clarkias*, *Eschscholtzias*, *Malopes*, *Larkspurs*, and *Candytufts*, and strewed at random over the open parts of the border, after a thorough cleaning. *Dallies* should be increased without delay, and an early batch of *Chrysanthemum* cuttings or suckers put in. *Lobellias* should be potted, and put into a dung bed. German and Ten-week Stocks should be sown in fresh soil in a cold frame, or one that will soon cool down, and a few early German *Asters* on a slight heat. Let walks in bad condition be turned forthwith, and fresh coated with gravel, filling them well up. They then harmonise better with the adjoining surfaces than when deep. Give air to *Auriculas* on every possible occasion, as the effect is very much diminished when the flower-stems are drawn up weak. A finely-grown *Auricula* ought to support its truss without assistance. Whilst the blooms are unexpanded slight showers will be of service when not accompanied with boisterous or cutting winds, but as soon as they are open moisture overhead should be avoided, as it is apt to disturb the paste of the eye, and to give the flower a smeared appearance. Polyanthes, if not parted last autumn, may now be divided advantageously; if the plants are required for exhibition, of course this operation may be deferred. Canker, to a considerable degree, has made its appearance in many collections of *Tulips*; effectual means must be immediately taken to eradicate it, by removing the soil, cutting away the diseased part to the quick, and allowing it full exposure to the air. Seeding *Tulips* must be carefully attended to, and kept free from weeds, and their growth encouraged as much as possible. *Carnations* and *Piotees* should immediately be put out in their blooming pots, and placed in a sheltered situation on a layer of coal ashes, to prevent the ingress of worms, &c. In order to make sure, place a piece of fresh-cut Potato in the soil by the side of the plants, and should there be, by any chance, a wireworm overlooked, it will generally prefer the former, and may thus be caught. *Dahlia* tubers potted off after they have taken root, may be gradually hardened by occasionally tilting the frame lights. Continue to put in fresh cuttings as they become sufficiently long. *Pinks* and *Pansies* must be attended to as previously directed, taking especial care to entrap snails, &c.

## GREENHOUSE AND CONSERVATORY.

The classification of work is at all times of the utmost importance, more especially at this period. There are maxims in gardening, established by long practice, which if borne in mind by the amateur would save in no small degree the tedium of repetition. For instance, there are certain vegetables for which, in order to produce a continuous succession, no better rule can be offered than to sow a succession as soon as the preceding sowing is fairly above ground. This holds good of

*Peas*, *Beans*, *Horn Carrots* for drawing young, *Radishes*, *Spinach*, *small salads*, &c. Again, with regard to plants for early forcing, the budding or shooting of one set introduced to the forcing pit, should be the signal for the introduction of a succession. In matters of propagation, likewise, cuttings of various flowers for the summer's display should be collected, if at all possible, simultaneously, struck in a frame or pit together, and nursed together afterwards. They always meet with more steady and uniform treatment under such a course, and it conduces likewise to lighten labour. A thorough revision of all the plants in the houses where mixed collections are kept and forced, is necessary at some time in spring, the shutting-up of late vineries and Peach houses generally offering facilities for their arrangement, and, of course, for relieving the other structures. It is of importance to keep plants classified, or in families, as much as possible. This will save labour. For the reception of exhausted forcing stock, a pit or frame should be fitted up in order to avoid mixing such plants with the general stock. The amateur may carry out this principle with a small frame. What is required is a bed of mild fermenting material, covered 6 or 8 inches deep with tan, well topped up with linings, and matted at night. A bottom heat of 80°, with frequent syringing, and the plants plunged, will restore them to perfect health, and prepare them for another campaign. *Fuchsias* will be benefited by the application of clear liquid manure. Very liberal shifts will be necessary at this period, more especially for those intended for large specimens. *Cinerarias* for late blooming should, if potbound, be shifted likewise. Let plants in want of water have immediate attention; nothing conduces more to the encouragement of insects than suffering plants to be checked through drought. Continue to propagate, and see that cuttings and young stock are carefully shaded when necessary.

## STOVE.

Orchids should now be allowed a slight advance in temperature, especially by shutting up early.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

TURNED over vacant ground in frosty mornings. What with frost, snow, rain, and sleet, the ground in this quarter is not yet fit for sowing, but a rising barometer leads us to hope that before this is printed many seeds will have been comfortably committed to the ground. Some seeds sown a month ago, as *Peas* and *Beans*, are just beginning to extend the radicle, the seed as a whole swelling slowly. These were safe enough with 8° or 10° below the freezing-point, but seeds of small size, and, as they ought to be, slightly covered, would not be equally safe after germination had commenced. The most tender time with all annual seeds is just when germination has taken place; when the roots begin to take hold, and some leaflets appear aboveground, the plants will stand much more cold uninjured than in the first processes of vegetation. We had a small paper of chipped seeds of Onions sent the other day, with the inquiry whether it would be safe to trust them. We should say, Sow again. They had been sown at the end of February, the seeds had swelled and germinated, but the radicle seemed decayed, and the little plumule or rising stem had turned back on itself, and seemed decayed quite at the points, whilst the seed was soft and pulpy. We have also seen some Oats sown nearly a month ago in stiff rather wet soil. Many of these seeds had been sealed up with an incrustation like clay, and from want of air had commenced to decay instead of to germinate. So many were in this condition that the crop would be rather thin. Hence the advantage, in such seasons, of light easily worked soils, as sowing can take place at almost any time. In heavy soil the time of sowing must be watched.

Planted out more Potatoes, and where the soil was in good condition sowed *Peas* and *Beans*. We also sowed *Radishes* where a little protection could be given. Sowed *Peas* in boxes in one of the houses, as those we had depended on for planting out had been almost devoured by rats and mice. We took the precaution of red-lead-ting them before sowing. We gave a little manure water to *Peas* growing freely in the orchard house. In fine mild days we took off the sashes from Potatoes, *Radishes*, &c., coming into use. Put in the last piece of Asparagus in a bed with a little bottom heat; and we planted out *Lettuces*, and sowed a few *Cauliflowers*, *Winter Greens*, &c., in boxes, to be a little in advance of those to be sown shortly out of doors. Cleaned Mushroom beds, and as soon as we can spare the

material we shall make a small bed in a shed out of doors, which will enable us to get the Mushroom house repaired. Divided and planted herbs, as Mint, Sage, and Thyme, and kept up successions of Sea kale and Rhubarb. The weather has hurt the Winter Greens but little, as fortunately the most severe frosts were preceded by a sprinkling of snow.

#### FRUIT GARDEN.

But for other matters pressing we would like to finish pruning, washing, and nailing, as soon as possible. Our beds out of doors are not very forward as yet, and the severe frosts do not seem to have injured them. Planted a few fruit trees, though we would rather have done it in the autumn, but other matters prevented our doing so then. But for the root action many things do well planted in spring, just before, or when fresh growth is commencing. Orchard houses now have plenty of air, especially the latest, in which some Peach blooms are opening, and Plum buds merely swelling. The earlier house is shut up in the afternoon, so that there may be a succession. Strawberries want a little more sun to give them firmness and high flavour. A row of Black Prince at the back of a narrow Cucumber pit heated by hot water, swelled and ripened fruit fast, though the heat was quite enough for them; but a little air had to be left by tilting the sash fully a quarter of an inch to give them firmness. Black Prince is still a fine early fruit, though not equal in flavour or size to Keens' Seedling, but it will do well in a low temperature of from 50° to 60°, with a rise from sunshine. If the foliage be kept vigorous, the size of the berry is also very fair, and when firm and becoming black not by any means to be despised. Regulated and stopped Vines in the mildest house, and changed the plants beneath them, placing many of them in cooler quarters. The stages beneath have been useful for flowering plants of Roses, Pelargoniums, &c. Just as a proof of the superiority of a house to a pit, we may state that Roses that stood still in much the same temperature in a pit, without any seeming tendency to open kindly, at once swelled and opened freely when set on a stage in such a house, even though the Vines began to shade them. The abundance of air in a large house, and the more direct light from the upright front sashes, are great advantages over a flat-roofed pit. Such pits are most useful for keeping plants in winter, and growing them in summer, when the sun is higher in the heavens, and the rays of light approach nearer the perpendicular. In a flat-roofed pit, placed in a low position, very few direct rays pass through the glass except close to the back wall. Hence, though a very white wall in such a pit might be dangerous in summer, as promoting burning and scalding, the lighter the wall in winter, if a little air be given early in bright days, the better will the plants thrive, as in a sunny day the light, and, not to be forgotten, the heat likewise, will be reflected.

#### ORNAMENTAL DEPARTMENT.

The work has been much the same as in previous weeks. We have been busy in trying as soon as possible to finish planting for plantations and covers. It is much in our favour that few forest trees have as yet made much progress. Spruce, &c., are standing quite still, so that we must hope that when the terminal buds move the roots will also begin to move. There is more excuse for planting now than in most seasons, as last autumn the ground was so dry, though warm, that the plants could neither be taken up without injuring their roots, nor could the roots be prompted to grow at once in the dry soil. Large trees could not be removed at all without injuring the roots, and large or small could not be well planted in the autumn without the help of the water cart, and that in many places could not be thought about owing to the scarcity of water. During last summer we scarcely lost a Spruce that was planted the previous autumn: not early in winter, but many Larches died after they budded in spring. This was partly because the ground in one place was hardly suitable for Larch, being rather damp and swampy, whilst the Larch is most in its element on elevated ground, or along the sides of a hill. But there was another reason—the Spruce were nice, short, stubby plants, and could be well fastened without planting them too deeply. The Larches were taller and more slender plants, from standing more thickly in the nursery rows, and many of them, we believed, were planted too deeply, in order that the wind should have less power to sway them. Simple though the matter looks, nothing is of more importance than taking care that the collar of the plant, that point whence the roots descend and the stem ascends, should not be buried, or at most but very little. Sinking the stem of a tree 3 or more inches will often kill the young plant. Less than an inch is of

less consequence. We recollect a case in which 12 or 15 inches of soil were placed round young Oaks of some 4 or 5 inches in diameter, and it very nearly killed them. We are sure they looked badly for years afterwards.

In planting some young Oaks in an exposed place, and far apart, the trees—say 14 inch in diameter at the base and about 10 feet in height, and taken from where they stood rather thickly—were each wrapped round from base to top with a band made of rough hay and straw, leaving spaces, however, between the rounds of the band, and we gave each tree a stout stick to keep it from moving with the wind. The stick was fastened a little distance from the tree in firm ground, and then brought in a bend to the stem, and secured. In staking fresh-planted trees it is always important to put the stakes in firm ground. In planting large trees, it does away with all necessity for pointing the stakes, as the larger and rougher the base the more firmly will they hold.

Some years ago it became necessary to thin the trees in a young Oak wood, where, after the nurses of Larch, &c., had been removed, the Oaks stood very thickly together. It was deemed desirable to try and move some of these Oaks to an exposed place, where they would have the chance of growing into goodly trees. These young trees would average from 20 to 25 feet in height, and the boles would range from 3 to 4½ inches in diameter. As the trees stood rather thickly, anything like a ball was out of the question, and even justice could not be given to tracing the roots. That, however, was done as far as possible, and as these Oaks had been planted when 5 feet in height, not sown on the spot, or planted when smaller, they took up better than could have been expected, and without much of a ball were carried to the places where they were to be planted. A little good fresh soil was added to each hole, and instead of burying the collar of the plant, it stood, if anything, a little higher than it did before, so that the tree should have a natural mound, as the pedestal to its shaft or column. When the trees were secured in their places in a temporary way, before the roots were finally packed, and the soil beaten about them, the smaller trees had two stakes, and the larger three, with the base ends placed in the firm soil beyond the moved ground, and the tops bent so as to come to the stem and be secured there with a band of moss or hay, to clear the stem, and securely tied with rope yarn. We do not think that one of these trees so swayed with the wind as to make the smallest opening at the base of the trunk. An established tree unless broken never suffers from the wind; but a fresh-planted tree, if the base moves, and openings are there made in the soil in consequence, cracks and destroys the fresh-forming roots. Hence the importance of firmness. We do not think one of these trees failed, and no one would suppose now that they had been transplanted and staked, as all traces of these operations have long been gone, and we do not recollect of any extra care they had, except two or three waterings the first summer, and a good syringing overhead in two warm days in April and May, by taking some large barrels of water, and using the garden engine. Now, we might tell all this with perfect truth, and still leave a most important part omitted, one of the chief essentials to success. These trees had smooth bark from being drawn up thickly, the one thus protecting the other. Taking such trees to stand exposed in an open position, would be like taking plants out of a hothouse to stand in the open air, without any previous hardening off. The trunks were therefore wrapped in straw bands, leaving a little space between the rounds, which the out-jutting straws partly covered, but yet admitting air, these bands being carried into the head, and round some of the principal branches. Besides at the base and top, a small cord was placed round the bands here and there to keep them secure. The bands were never looked after more. Pieces of them would be seen on the trees three or more years after planting, but the winds carried them off just as the bark became rougher, and capable of giving suitable protection. It was often a matter of regret that many more such trees were not transplanted. Whilst giving due prominence to other matters detailed, we think the hay and straw bands formed not the least of the elements of success.

The general work of potting, cutting-making, &c., was much the same as last week.—R. F.

#### TRADE CATALOGUES RECEIVED.

J. Hone, Eastgate Nursery, and 9, Church Street, Peterborough.—*Descriptive Catalogue of Vegetable, Farm, and Flower Seeds.*  
George Rawlings, Old Church, Romford.—*Catalogue of Dahlias.*

## METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending March 29th.

DATE.	BAROMETER.		THERMOMETER.		Wind.	Rain.
	Max.	Min.	Air.	Earth.		
			Max.	Min.	1 ft.	2 ft.
Wed. ... 23	29.63	29.365	41	36	43	N. .00
Thurs. ... 24	29.84	29.758	44	33	43	N. .00
Fri. ... 25	29.782	29.700	46	33	42	N. .00
Sat. ... 26	29.609	29.702	41	32	40	N.E. .10
Sun. ... 27	30.271	30.190	45	33	41	N. .00
Mon. ... 28	30.351	30.317	39	39	41	E. .00
Tues. ... 29	30.291	30.257	42	39	41	N.E. .00
Mean.	30.678	30.377	42.71	37.71	41.85	40.14

- 23.—Sharp frost; overcast, cold wind; clear and cold.  
 24.—Fine and frosty; overcast; densely overcast.  
 25.—Clear and frosty; very fine; clear and fine, frost.  
 26.—Snow; snow and sleet; overcast; very cold.  
 27.—Densely overcast; cloudy but fine; clear at night.  
 28.—Densely overcast; cold and overcast; densely clouded.  
 29.—Overcast; densely overcast; clear and fine.

## TO CORRESPONDENTS.

☞ *Being published in time for transmission by the Thursday morning mails, the Journal, or Horticulturist, should, with few exceptions, be delivered on the same day and at the place of the country. If there is any delay, let our readers apply to the nearest railway bookstall, on the day paying their subscriptions in advance their copies will be regularly supplied. If country bookstalls cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.*

\*. \* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

N.B.—Many questions must remain unanswered until next week.

INDEX, &c. (G. B.).—You can have the index and title page for vol. viii. if you enclose two stamps with your address. Of No. 303 we have not one left.

COCA-NUT PIERRE REFUSE (G. G.).—You can obtain it from Messrs. Barsham, Kingston-on-Thames.

SUNSOIL (An Amateur).—It is a yellow loam, with a slight preponderance of clay in it. An admixture of half a spit deep of the subsoil with one spit deep of the surface soil will be best. Lime or civet will be beneficial, but the soil needs also a liberal addition of excrementitious manures.

HYDRISIDING PELARGONIUMS.—The extract we made at page 206, from the *Toronto Globe*, is published in that paper, and is signed by Mr. Craig, but we are informed by Mr. Mason, Prince's Park, Liverpool, that he wrote it, and that it appeared in the "Gardener's Magazine" last year.

ROSE PICTURES, &c. (Forest Hill).—Any florist who advertises in our pages could supply you with the Pictorees. Looker's boxes would answer for the purpose you mention.

POTATO MANURE (G. F.).—As you do not mention the kind of artificial manure we cannot advise you in the matter. Whenever you wish it will give you the information. Do not put it into the drills with the sets, whatever it is.

RHODODENDRON EDWORTHII TREATMENT (G. Williams).—We think your plant must be kept too warm, or in an insufficiently ventilated structure. We advise you to keep it in a sandy, porous pot with plenty of silver sand, draining the pot well, and raising the compost rather round, but potting firmly, and not leaving any interval between the sides of the pot and ball. A moderate shift is better than a large one, and is turning out the plant remove the crocks and any soil not occupied with roots. Place the plant in a light airy position in a cool greenhouse, and water sparingly, but keep the soil moist until the roots are working in the fresh soil; then water freely, and copiously when the plant is growing fast, not allowing the foliage to flag. Whilst the growths are young slight shade from bright sun is very beneficial, together with a moist growing atmosphere, the moisture being accompanied with abundance of air. When a good growth has been made the plant should have full exposure to light, taking care to have the foliage dry before the sun shines powerfully on it. After the growth is perfect keep the soil moist, and let the atmosphere be moderately dry, and cool and airy. The plant ought to flower next year.

NIGHTSOIL FOR GARDEN CROPS (A New Subscriber).—You may advantageously apply it to every part of your garden now. It may be spread very thickly, and then dig in so as to take away all offensive smell. We consider it a very powerful and valuable manure. It is best when mixed with dry soil and laid up for two or three months; it thus loses none of its fertilising properties, and when well mixed forms a kind of guno. It will not injure anything if applied in moderate quantity, and dug in before sowing or planting. It can be safely transmitted by the post. They answer very well except for very long distances.

HOLLIS SACCHARATUS CULTURE (W. H. W.).—It should be sown in May in rich light soil, brought to a good till. It may be sown broadcast,

or in drills at the same distance apart as for Wheat, and at the rate of four bushels per acre. Some time ago it was highly extolled as a forage plant, but has proved utterly useless in our climate, being for nutrition inferior to Ryegrass and Trifolium incarnatum.

ASTER SEED SOWING (Joseph Robson).—The frames, filled to within 4 inches of the glass with soil, will answer well, the seed being sown early in April, and the sashes kept close until the plants appear, when air should be given to keep them from being drawn up. Keep the soil sufficiently moist. In sowing, a drill of an inch deep can be made with the finger will answer very well, covering with about that depth of fine soil. In very frosty weather, and at night, the lights should be protected.

GARDEN NETTING (J. G. M.).—It is made waterproof by immersing the netting in a saturated solution in water of sugar of lead and alum, but a better plan is to soak it for a few days in a tanner's pit.

CULTURE OF HEATHS (Fleur).—After flowering remove the irregular growths, and replot the plants in sandy peat, with good drainage. In potting make the soil firm about the ball, not giving a large shift, but one sufficient to allow about half an inch of fresh soil all round. After potting place the plants in the greenhouse in a cool airy place, but the glass, watering them so as to keep the soil moist, as it should be at all times, avoiding heavy waterings, yet giving enough water at once to thoroughly moisten the soil. In June the plants would be the better of a cold frame, during the lights for protection from heavy rains by day, but well tilted back and front so as to afford plenty of air; at night they would be better drawn down. House the plants early in October, placing them in the coolest and moist airy part of the greenhouse, and give sufficient water to keep the foliage fresh. It is not unusual to lose plants of this class employed for drawing-room decoration.

BEST SOWING FOR RIBBON BORDERERS (Idem).—For lines in ribbon borders, we think the seed is best sown early in April where the plants are to remain. You would see what was said on the subject by "G. Q." in the Journal of March 10th, page 180.

SELAGINELLAS FOR ROCKWORK IN CONSERVATORY (T. H. T.).—The Mosses of rockwork will not succeed in the conservatory, but the Lycopods are very suitable and may be planted now in the clinks and on the ledges of the rockwork in sandy fibrous peat soil. The compost is all the better of being light, open, and sandy. Those kinds having stems, as *S. farinosa*, should have, or more inches of the stems planted in the compost, whilst such kinds as *S. denticulata* should have no more soil placed on them than enough to secure them in position. It will be necessary to shade from sun, and to syringe or sprinkle the rockwork and the plants two or three times a day, so as to keep them moist. It will be sufficient to allow the water to drip until the rockwork is thoroughly moist. If the water be allowed to drip constantly, the soil will become too wet for the plants. If the roof is covered with clinkers, that will be sufficient shading. *Selaginella denticulata* is the most useful of Lycopods, but the general effect of the rockwork will be improved by and over everything. *S. coccinea*, *S. apoda*, *S. apothecia*, *S. helvetica*, *S. stolonifera* or *farinosa*, *S. involvens*, *S. umbrosa*, *S. Schottii*, *S. pubescens*, and *S. Widenowii*, the most elegant and Fern-like of all Lycopods. We are not sure that *S. farinosa* is the best for use in the rockwork, and though we have not used it for that purpose we have used it largely for blocks for Orchids, and we have not found it injurious to them or favourable to the production of fungi.

CLIMBERS FOR CONSERVATORY (Idem).—Most plants are liable to the attacks of insects. For the lack nothing answers so well as Oranges or Citrus, though if the wall is a thick one, or built slightly of brick, Clematis elegans, Læthra græcissima, and Habrochlamys aurantiaca, are fine winter or early spring-blooming plants, the last two sweet-scented and fine for cut flowers; so, too, are Oranges and Camellias, which are what we recommend. If you plan for a plant for the back part of the wall, *Lagerflora rosea* succeeds well in such a position. For the front *Jasminum grandiflorum*, *Keaneyia Marryatæ*, *Mutisia Clematis*, *Passiflora aculeata racemosa*, *P. Conata Nesselrode*, *Simcoa prostrata*, *Salsola heterophylla*, and *Tuesonia Van-Volscomi*. A Vine in a pot plunged in ordinary garden soil, and the cane introduced into a greenhouse, would not, we think, grow sufficiently to furnish efficient shade. It would be better to keep the Vine inside, and shade the greenhouse by brushing a thin coat of whitening and milk over the inside of the glass. This shading may be washed off at will. The proper name of "Climbing Jenny" is *Glechoma hederacea*, the variegated variety of which is very pretty. The *Climbing Jenny* is a fast-crawling plant with yellow flowers, succeeding best in moist situations.

PROTECTING VINE BORDERERS (S. M.).—Whether the Vines are forced or not, protect the roots from excessive cold, and wet soil in winter, and from frost in summer. About the vines you mention write Mr. C. Fox, Arcades, Royal Horticultural Society's Garden, South Kensington.

WEIGHT OF LIME AND SOOT (J. Currie).—We do not know the weights of a bushel of the one and a peck of the other. Cannot you weigh them yourself?

REPORTING FRUIT TREES (G. P.).—We have orchard-house fruit trees in pots that have not been reported for more than six years, and they do not seem to want it, as they have had rich top-dressings. We have others potted not more than two or three years in rather small pots, that we would have reported in autumn if we could have done so. When the pot is large, a plant may remain many years in it if afforded rich dressings, &c.

ORCHARD HOUSE (Sanguinal).—We have no doubt that your orchard house with air night and day in all weathers, will so far act as you suggest, save all trouble with ventilation, and give you an increased temperature in sunshine, but still there may be injury sustained by the trees in very severe winters and spring winds, if your plan you can neither keep frost nor keen winds out of the house.

GLAZING A GREENHOUSE (Poplar).—Unless your greenhouse roof is very flat you need not be afraid of drip if you use grooved rebates, and place the squares edge to edge without laps. The chief point is to have the groove wide enough to take the glass easily, so as to give room to expand laterally. We hardly know what it would be best to pack the squares with inside.

SAILING (O. K.).—What is meant by sailing the outside of the ball of a pot plant is simply this—taking the spout of a small watering-pot in one

hand, and a piece of cork or oystershell in the other, placing the cork inside the rim of the pot, and pouring the water on it until it circulates all round, thus wetting the ball of the plant without drenching or greatly wetting the collar of the plant. This is very different from watering overhead with a rose, or watering with a spout, so as to send the water at once to the centre of the plant, and in time forming a hole close to the collar of the plant—a common practice with waterers, and one which destroys many plants.

**STOCKS FOR PLUMS (Nemo).**—Your Damson trees will make very good stocks for Plums. Now is the time to graft them; or bud them in July or August. To graft now is the preferable mode.

**PLANTS FOR A GRAVE (Nemo).**—I think everyone should consult his own feelings as to the decoration of a grave. Your arrangement of flowers will be very gay in summer, but all of them will die in winter. The Camas at the corners, and the sort of ribbons round of Petroselinum, Lobelia, and Pinks, will be gay and slightly sombre. Though we do not like to see a graveyard in a rich, neglected state, we do not like making it a flower garden. We would prefer a preponderance of evergreens, the grave covered with Cotonaster microphylla, and Cyprinus and Irish Yews near it; for flowers, Snowdrops, Daisies, Primroses, and Pinks rather than the more grandly adorned ornaments of the garden, and especially we would add any flower admired by the tenant of the grave.

**CUCUMBERS IN A GREENHOUSE (A Beginner).**—With one pipe below a dung, and only one exposed in a house 16 feet wide, we think it would be of little use tending out Cucumbers in a greenhouse. It would be like a dog bed in the centre where you have sunk the pit, that would make an alteration, and there you could protect the plants with handlights, or even frames, until the weather became warm enough to do without them with the help of the pipe.

**SIX GREENHOUSE CLIMBERS (Idem).**—These, to be trained on globe trellises and to bloom in August, may be *Mandarin cordata*, scarlet; *Soliva heterophylla*, blue; *Billardiera angustifolia*, yellow; *Rhododendron volatile*, dark purple; *Maurandia Barclayana*, purple; and *M. semper-florens*, pink. Myself would prefer a bell-shaped trellis to cover a trellis and bloom well, though chiefly because rather than the more grandly adorned ornaments of the garden, and especially we would add any flower admired by the tenant of the grave.

**VARIETIES (Centurion).**—A good average field crop of Potatoes is from 150 to 160 bushels per acre, or one bushel per rod, or 200 square yards. *Passe Crassane* Pear, being a new one, is not described in the last edition of the "Fruit Manual." It is described by Mr. Rivers as of medium size, melting, rich, and excellent; one of the finest late Pears known. February and March. It succeeds on the Quince, and in cold situations requires a wall. Of course it is best on the Pear stock for that purpose. The Horticultural Society's descriptive list of fruits has been out of the press long time. The "Fruit Manual" is now the recognised authority on such subjects. Apples are quite as plentiful as they ever were, and many valuable kinds have been recently introduced. The value depends on the kind and size. Not knowing what you want, we cannot give any approximate value. The "Fruit Manual" is now. They may be worth 2s. 6d. each, or worth three or five guineas. We cannot give an opinion on those raised from seed from Abyssinia, without seeing them. Consult a nurseryman.

**AZALEA CUTTINGS (Idem).**—We should think the plants are suffering from bad treatment. We advise you to pot them, removing the old loose soil and the drainage. Place them in pots to hold the roots without cramping, and to allow of a little fresh soil being introduced between the ball and the pot, and make the soil firm round the ball. In potting, good drainage must be afforded, and the ball raised so that the collar of the plant shall be level with the rim of the pot. The best compost is sandy brown (not black) peat chopped up and made fine, but not sifted, with about one-sixth of silver sand. Place the plants in a house with a temperature of from 50° to 55° at night, with an increase of 10° on dull days, and 12° or 20° with sun and air. The atmosphere should be kept moist, and the plants sprinkled overhead morning and evening. They should have shade from bright sun; that afforded by Vases is suitable. Water must be sparingly given, but keep the soil copiously. In the course of June their growth will be complete, when they should have more air and a lighter position, and in July they may be removed to a cool house with an east aspect, and have all the air of practicable day and night. In winter they will succeed in a house from which frost is excluded. They ought not to be placed out of doors in summer. We advise you to treat the other plant in the same way. When the growth is complete the shoots ought to be tied down with strips of best, disposable muslin, and fastened strictly all around, so as to produce a well-formed specimen. Care must be taken in tying down or out not to break the shoots, which are very brittle. Your plants ought to flower next year.

**LONDON NURSERIES (Little Ben).**—It requires influence and considerable qualifications to be a nurseryman in a large London nursery in the way you wish to be, and the only mode is to enlist in your favour some one who has influence with the great London nurserymen.

**INSURING A GREENHOUSE (J. N.).**—The only "accident" you can insure against, except fire, is injury by hail. The Farmers' Insurance Company will do this.

**VARIETY OF CITRUS (R. Fyfe).**—This is a well-known seedless variety. The green points projecting from the fruit's apex are the ends of the carpels uncovered by the rind.

**REMOVING TAR FROM THE STEMS OF TREES (Conteillière).**—Painting the stems of Apple trees with tar to keep off rabbits, especially if gas tar, is an evil in young trees nearly as bad as the damage done by the rabbits. The tar having become dry it cannot be removed without injuring the bark of the trees. We advise you to wind round the stems haybands, which will keep the sun from acting on the tar, and also keep off rabbits. Your arrangements for planting the two varieties are excellent, and we have no suggestion about the selection of varieties. There is no reason against planting the *Black* and *White* of *Sax.* in a house with black Hamburg or Blackland Sweetwater Vines.

**GRASS FOR LAWS (Norwood).**—There is no time too pressing for lawn grass ground bones, and yet for the destruction of mosses grass is better. It should be sown in the autumn, and in April or early in May with showery weather, and at the rate of 2½ cwt. per acre, or 1½ lb. per square yard. Heavier dressings may be given, but if the weather prove dry after its

application it is liable to burn the grass. We therefore think it better to apply the manure twice a year, in April and again in July, during showery weather, and at the same rate per square yard or acre.

**WIREFORMS IN CUCUMBER BORDER (Charles Wells).**—Your best plan will be to insert whole raw Potatoes in the bed at 9 inches apart, making with a dibber holes from 3 to 6 inches deep; then, if you point sticks about 9 inches long, you can thrust one into each Potato in the holes, leaving part of the stick above and forcing so as to draw on the bait every second or third day in order to destroy the wireworms. The holes should be closed with soil after the Potatoes are placed in them. The eyes of the Potatoes should be taken out to prevent growth. The Potatoes will serve a long time. Pieces of Carrut make as good, if not better, bait. After examination return the baits to their positions, closing the soil lightly round them. The use of these baits persisted in will clear the bed of the wireworms, or at least keep them from the cucumber roots. We are, both for Cucumbers and Marrows, so as to cut chopped up, and though wireworms are plentiful in such compost, we have not suffered from them.

**NAMES OF INSECTS (W. N.).**—Your "Chrysalides" are the eggs of some species of snail. (W. B.).—The chrysalis snail is that of the common small white butterfly, of which the caterpillar feeds on the Cabbage. The specimens of the caterpillars which you have found filled with young, as many as twenty being in one caterpillar, have been attacked by the female of a small species of Ichneumon fly, which deposits her eggs beneath the skin, and the young grubs which you found have been hatched from such eggs, and are consequently parasites, which will turn ultimately to small black four-winged flies of the genus *Microgaster*.—W.

**NAMES OF PLANTS (R. Clarke Roy).**—*Sella biflora*. (H. C. Castleton).—*Pteris semipinnata*. (R. K. G.).—*Pteris serrulata*. (W. B.).—2. *Polypodium pinnatifidum*. 3. *Pteris caerulea*. 4. *Asplenium ad-nigrum*. 5. *Pteris serrulata*. 6. *Asplenium ad-nigrum*. 7. *Selaginella Martiana*. (J. M. Dublin).—Most probably your plant is correctly named *Pittosia argyrea*. It appears to us to be that plant. Stove treatment in winter is quite essential to it, as indeed it is at all times, and if you are small white butterfly, you will find placing a bell-glass over it a very useful expedient. It should not be allowed to go to rest in winter, indeed, it has no tendency to do so, and it retains its beauty through the winter; the careful use of the watering pot is to be specially enjoined at that season. It sends freely from the base of the stem, so that a good plant can readily be divided. Cuttings in summer strike with the greatest ease. (Miss M. E. Wellington).—No leaf came, but we cannot name plants from their leaves only.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### TRIMMING FOWLS.

ALL who remember the long discussion which took place on this subject last season, will not need any assurance from me of the deep gratification with which I read Mr. Hewitt's paper in the Journal of March 10th; and in one sense I by no means regret the flagrant Torquay case of the week before, since it has produced from our "Lord Chief Justice" such a manifesto. As Mr. Hewitt invites co-operation, I hasten to add mine; and I am sure he will not take it amiss if I first state a point where I think his utterance not sufficiently clear, before I pass on to the part where I go with him altogether.

When Mr. Hewitt says that he looks upon the abstraction "of a body feather or two" as a very different affair from certain other more glaring fraudulent practices, I do not by any means object, if the words are taken *literally*; but I fear there is some danger they may be understood in a far wider sense than he would intend. If a fine Spanish hen has a stray white feather or two, or two or three red feathers are found on the shoulders of a Brahms, I would not particularly condemn anyone who pulled them out. In all I wrote formerly I expressly excepted such cases, as a bird may be really first-rate in spite of such minor blemishes, and we may all be satisfied if people will be fairly honest as times go. But the abstraction of feathers may be carried so far as to have precisely the effect of a dye. At last Birmingham Show one of the prize pairs of Buff pullets had been extensively plucked in the huckle, so as to remove all the black feathers, which had evidently been rather abundant. Now, the pure-colored hackle is a point of great moment in this breed, and a bird possessing it will be of far greater pecuniary value, besides being quite a different fowl for the show pen, to one with black feathers. And certainly, as by plucking all these black feathers out the imperfect bird is represented as being perfect in colour, it practically amounts to a change of colour, and seems to me a fraud exactly similar, both in kind and degree, to that of the Torquay exhibitor who represented the imperfect wing of his cock as being perfect in colour by using a dye. As Mr. Hewitt says, a rigid line cannot be drawn; but I think common sense teaches that mere abstraction of feathers may be, and often is, as serious a fraud as dyeing or cutting combs. The point seems to me to be, how far the character, appearance, or value of the bird is really transformed by any operation whatever. In just the proportion that there is real transformation, it seems to me there is the fraud.

The next point I would mention is the only one hinted at by Mr. Hewitt—it is, the difference between mere profession and practice. The Torquay exhibitor who brought upon himself such a humiliating exposure, last season signed the "protest" against trimming, and accompanied his signature by some observations on the subject quite as strong as any I would care to use. I regret I cannot find his note, or I should have much pleasure in quoting from it. And now that honest "protestant" has himself been detected in a very flagrant act of trimming! That others who signed have done the same I know, and though I knew it would probably be so, the proof of it is painful none the less.

But further: What are we to say of committees? There are many of them who actually will not permit a judge to affix an honest card of disqualification. If even the few cases detected were thus posted up and reported in the Journal, the effect of this comparatively mild measure would be far greater than it is; but at present, by the cowardly shrinking of committees, even these detected cases often pass unpunished.

I quite agree with Mr. Hewitt in the penalty he proposes, and would carry it rather further still. I would not only have all other prizes detained, but would affix on every other pen of the same exhibitor a "dis." card, stating that the pen was "Disqualified, the exhibitor being guilty of fraudulent deception in Class 00." I would do this because some fanciers only look at their own special classes, and would thus be more likely to see the fraud, by its being posted in different quarters of the show. Thus extended, I think the idea the best which has been yet mooted, and very far superior to a prohibition against showing in future, which I have never liked, as precluding all future opportunity for reformation.

But it cannot be too plainly and fully understood, that the adoption of this or any other effective measure rests entirely with committees. The judges, as Mr. Hewitt says, have no power to enforce such a penalty as he suggests, unless it be a condition of the schedule. He has frankly and fairly suggested an effectual remedy, and laid the onus of providing it upon them. He and other judges, to my personal knowledge, are willing to take the responsibility and to do their duty. It only remains to be seen if the committees will do theirs. Let it be understood clearly, no personal ill-feeling or personal responsibility will fall upon them. This the judges will take upon themselves, if only the committees are willing to give them power. That is now the simple issue, and I wait the result with much anxiety.

I had wished to add a few words further on a subject I mentioned a short time ago—viz., betting on the awards, which is stealing into the "fancy" unawares to many; but I have not time now, and I understand Mr. Hewitt, whose knowledge of the matter must be greater than mine, intends to ventilate the subject himself. I do not know any subject, not even trimming, which ought to give such painful solicitude to all real poultry-fanciers.—L. WRIGHT.

I was very glad to see Mr. Hewitt's very proper and temperate reminder in retrimming. In trying to devise a cure, it may, perhaps, be as well to examine the cause of the disease; this will, I think, chiefly be found arising from three sources:—Firstly, The belief that "you must trim to win"—how often have I heard this expression!—and that the largest winners are the most scientific trimmers. Secondly, The vanity, which I will allow is harmless in itself, of seeing some attention paid to the exhibitor's name by the editor of one or more local papers. Thirdly, The pursuit of £ s. d., not so much, perhaps, by the actual receipt of prize money, though that is sometimes a consideration, as by improving the value of the bird from its having been a prize-winner. To eradicate the evil in toto is, I am afraid, impossible, but my belief is very strong that if the secretaries of shows would treat the matter with a firmer hand, communicate to each other the names of offending exhibitors, and through their committees refuse the entries for a time of anyone guilty of such practices, it would operate beneficially on all the three causes I have enumerated, and encourage more particularly young exhibitors in a right course. Let them see that the true object of competitive exhibitions is not to afford an opportunity for giving prizes to men who are able to command money enough to buy specimens that have won before and are pretty certain to win again, but rather to encourage those who keep birds from a true love for nature, and one of the most delightful and innocent of all recreations, and who employ their

leisure hours in perfecting what is often at first a mere freak of nature to the pleasing of the eye, and also in a more substantial way to the benefit of mankind. I fear I shall tread on the corns of some in thus writing, but I wish to state distinctly that I do not allude to anyone, nor is anything further from my wish than to indulge in personalities, but as an old exhibitor I am desirous of weeding out the evil which has been caused by overdoing a good thing, and helping, if possible, live-stock exhibitors in their honest endeavours to benefit the country.—HAWTHORN.

### ON JUDGING AT POULTRY SHOWS.

ALTHOUGH I have only lately resumed the keeping of poultry, and for the first time in my life have become an exhibitor, I am not a stranger to poultry shows, and my experience has led me to see that there is a radical defect in most of the shows of which I know anything. It may seem presumptuous in me to write anything about a matter which I have only so recently entered upon, but I submit my views in all humility to those of longer experience.

I have been perfectly astonished at the correspondence which I have from time to time seen in the "Poultry Chronicle" of the JOURNAL OF HORTICULTURE. I have been used to hear charges of foul play on the part of exhibitors at flower shows, and also to hear both myself and others loudly condemned for our judging; but I confess the statements made on both these points, and apparently on good authority as regards poultry shows, would be, unless thus made, utterly incredible. I know that sometimes (but very rarely) Dahlias are plugged, and other such malpractices committed; but it must be borne in mind that the dressing of Carnations and Pinks, the manipulating of Chrysanthemums, are recognised as fair practices, and one who can dress Carnations well is quite as much valued as one who can grow them well; but the charges as to tampering with poultry, and the tortures to which the poor birds are subjected, are a disgrace to the followers of any hobby. Apart from this, there are constant charges brought against the judges. They are accused of incompetency and of partiality—supposed to be influenced by local considerations, so that it is not considered by some persons desirable that committeemen should exhibit. Now, I do not believe in these charges. I have seen a good deal of judging at flower shows, I know judges may make mistakes, but I am quite sure that, except in very few instances, they are solely influenced by a desire to set up to the best of their ability; but there is a limit to knowledge even of feathered fowls, and there is also a limit to both physical and mental power, and it is the forgetfulness of these two things that has led to a great many of the complaints, at least so I imagine.

We all have heard the story of the wine committee of a great dinner, who met to adjudicate on the kind of port and sherry that were to be used; various samples of both were tried, the daylight faded, they were still at their tasting, but a decision had to be come to. At last a bottle of each was selected, but lo! the port chosen turned out to be a sherry, and *vice versa*. This has come into my mind as I have seen judges, tired and worn out, still going on with their work, conscientiously endeavouring to fulfil it, but evidently the weakness of the flesh was beating them, and I am pretty sure that the worst acts of wrong judgment have been those which have been committed at the end of their labour. I would therefore say to all managers of flower shows, increase the number of your judges; do not lay upon men a burden they cannot bear; do not give them, if possible, more than a couple of hours' work, and depend upon it your funds will not suffer from the additional outlay involved; and there are so many fanciers of poultry now-a-days that surely it is not necessary to keep within a narrow circle of a few names in selecting your judges.

There is one other point. I have said there is a limit to knowledge, and I suppose, as a rule, few persons do really understand the various properties and qualifications of both fowls and Pigeons. Do not have, I would again say, the same person to judge both; he may be thoroughly conscientious, but his fancy does not probably lie in both directions. Let him take that in which he is himself conscious he is most likely to give satisfaction. I know something of flowers, but I should be sorry to have to be a judge of fruits, and indeed, of some classes of flowers—Orchids, for instance; and I believe if judges were themselves asked, they would very much like to have their labours lightened and their responsibilities lessened.

In writing thus, let it be borne in mind that I have no complaints to make of anything of a personal character; I do not smart under any disappointment. I see that poultry shows are just now in a critical position, that they require to be carefully handled, or they will degenerate into mere meetings for money-making. Let fanciers be contented with their fancy, and not think merely, Will it pay? and let fair dealing on the part of exhibitors and thoughtfulness on the part of committees be combined, and I am sure there will be an increased interest in poultry. But if things go as they now seem to be drifting, we may soon write "Ichabod" on their glories.—D., *Deal*.

### EXHIBITION PENS FOR POULTRY.

I HAVE many opportunities of seeing the arrangements for poultry pens at shows in the west of England, and I think the plan adopted there is most desirable.

The cages supplied to the shows in Devon and Cornwall are arranged in double tiers. The lower tier has an elevation of 21 inches from the ground, and the lower cages are 30 inches square. The sides are of wood, the backs wire, and the front is wire in a wood frame, which slides in grooves similar to a window sash. By this plan no injury is caused to the bird by putting it in or taking it out of the cages. The tops of the lower tier are board, which forms a floor for the upper tier of cages. These are 21 inches square, and constructed in the same way as those in the lower tier. If a centre block of cages is required, they can be placed in double tiers back to back, with a clear space of about 1 foot between, thus allowing good light and ventilation, utilising space, and so giving in a small building increased facilities for promenading. I think, if the plan were generally adopted, managers of poultry shows would find that buildings of smaller dimensions would be more easily obtained than those they are now compelled to use, owing to the single-tier system.—JAMES CROSS.

[If those who make the pens and let them out on hire would advertise them, many committees would avail themselves of their use.—EDS.]

### POULTRY SHOW LABELS.

I AM sure that many of my brother exhibitors agree with me in wishing that secretaries of poultry shows would send them labels with eyes at both ends, and also that the labels might reach them a few days before the show. I have been an exhibitor but for one year, but in that time, though I do not often show, I have twice received the labels when it was too late to send the birds. A pen of my birds was entered for the Torquay Show, and was sent off by rail in good time; but fancy my horror at the birds being found next day at the station to which they were directed for the return journey. The label, having only one eye, had turned over, and my birds never went near the Show. I sometimes receive labels with two eyes, and I then fasten them down tightly, with a bit of string across, to make sure of their not turning over.—CHÉVE-CEUR.

### WORTHY RULES FOR RAISERS AND EXHIBITORS OF POULTRY.

NEVER keep your favorite chicks  
On floors of wood, of stone, or bricks;  
But let them have a good grass run,  
Where they may get both shade and sun.  
Feed on good food, oft during day.  
'Tis best to hatch from March to May;  
And breed from well-selected lot.  
Whether for show, for spit, or pot,  
Then you'll stand a chance, I know,  
To win a prize where'er you show.  
But recollect the judge's eye  
Will soon detect the silk and dye.  
With feathers tamper not, nor comb;  
But rather keep your birds at home.  
If you should substitute false sickles,  
You'll get exposed, as sure as picnics.  
It needs a stretch of genius, friend,  
To cheat the judge, and gain your end;  
But tripping sure will bring disgrace,  
Where'er you show, where'er the place.

—D. C. E. W.

[To be continued at intervals, with variations, if requisite.]

EFWORTH SHOW.—This is of poultry, Pigeons, cage birds, and Rabbits. We are glad to see that, in value, the prizes are

nearly double those of last year; it is evident that the Show was successful.

### HOUDANS EATING EACH OTHER'S FEATHERS.

I AM trying the experiment of keeping a large mangold wurtzel or a turnip in the pen, and so far I think it prevents the evil. I do not find that the birds which had begun this most trying practice have continued it since they have had a fresh root to peck at. In my despair it occurred to me that my too busy Houdans might find employment and cooling properties at the same time in a mangold wurtzel, and I believe my hopes will not be disappointed.—W.

### GAME FOWLS.

I FULLY agree with all the remarks in the interesting article on Game fowls by "CORNISH DUCKWING," in your number of March 10th. I have read all the works on Game fowls mentioned in the article, except that by Howell Morgan, who was the royal cockfighter to George II., and who dedicated his work to Frederick, King of Denmark, who married the Princess Louisa, daughter of George II. Howell Morgan sent many Game fowls from London to Copenhagen for the King of Denmark, who was fond of cock-fighting, as were the Danes at that time. The Welsh were then considered to be our best cockers and best breeders of Game fowls, and many of our best English breeds of Game fowls originated in Wales. The ancient Welsh chieftains used to make presents of Game fowls to their powerful neighbours the border Anglo-Norman Barons, who lived on the "marches," or borders of Wales.

Dr. Cooper is an American doctor, and his work treats chiefly on the Game fowls in the United States, to which country, as well as to India, many Game fowls have been sent of late years, and also some to France. The United States breeders are, I believe, possessed of both Lord Derby's and Lord Sefton's best old strains of Game fowls, both having been obtained from Liverpool, near which they were bred.—NEWMARKET.

P.S.—I have omitted to state that Howell Morgan, before his appointment as the royal cocker, united in his own person the three professions of free methodist preacher, cocker, and rat-catcher, in Brecknockshire, South Wales, where he lived, as my account of him states. I quite agree with "Y. B. A. Z.," that the Polish fowls, more especially the beautiful White-crested Black Polish, are very ornamental, the most so, with the exception of Game fowls and Bantams.

### THE INTRODUCTION OF THE WILD TURKEY INTO ARGYLLSHIRE.

At a recent meeting of the Natural History Society of Glasgow a paper was read by Mr. John Gilmour on the introduction into Argyllshire of the Wild Turkey (*Meleagris Gallopavo*), of which he received a male and two females from the southern extremity of Lake Huron, in Canada, in the summer of 1866. Since then, according to *Nature*, from which we extract this account, various broods have been successfully reared in the neighbourhood of Ardnamoan, where the birds have been allowed their full liberty in the woods. Mr. Gilmour concluded his paper with a description of the wild bird as compared with domestic breeds, remarking that it possessed greater symmetry with a more compact form, standing higher on its legs, and exhibiting other characters more like those of a Game bird than one of the gallinaceous order. Mr. Gray mentioned that there are now supposed to be three different species of *Meleagris* besides the *M. ocellata* of Honduras and other parts of Central America—namely, *M. americana*, which is probably peculiar to the eastern half of North America; *M. mexicana* of Gould, a species belonging to Mexico and extending along the table lands to the Rocky Mountains, the Gila and the Llano Estacado; also the *M. Gallopavo* of Linnaeus, or domesticated bird. This last species was perhaps originally indigenous to one or more of the West India Islands, whence it was taken in a tamed state to various parts of North America, and thence to Europe about the year 1520. The domesticated bird differs from the nearly allied wild species in having a largely-developed dewlap extending from the base of the under mandible down the fore part of the neck to its base, and it cannot yet be said to be a settled question as to the

precise original stock from which the valuable barnyard breeds have descended.

## NOTES ON THE LEEDS CANARY SHOW.

THROUGHOUT the season was over, and that breeders were busy storing away show cages and cleansing their breeding cages, when I was startled by the appearance of a schedule—a schedule extraordinary, being neither more nor less than a *fac-simile* of that issued by the Crystal Palace Company, but in this instance by a single individual, Mr. Thomas Clapham, the proprietor of the Leeds Royal Park. I saw a *fac-simile*, though the prizes, which were extremely liberal, were on a somewhat smaller scale, as well they might be, coming from the pocket of one man. In this respect, however, the exhibiting part of the Canary community may look for a revolution, something sensational, when the next Leeds Royal Park schedule appears.

The Park itself is a large wooded recreation ground, of how many acres I cannot say. My idea of what 4800 square yards represent being rather indistinct. It is beautifully and tastefully laid out, and ornamented with statues, fountains, ornamental trees and shrubs, and bears all over evident marks of most lavish expenditure in the attempt to cater for the amusement of the masses. A very attractive feature is the large conservatory in which the Show was held, the "Tropical Department" in miniature. The birds were ranged in single and in some cases in double tiers on the inner side of a wide walk, which traverses the circuit of the building, the centre being for its entire length a forest of Camellias and other beautiful plants. The classes were divided by, and the cages interspersed with pots of Hyacinths, Tulips, and green and blue plants in bloom, and the *tout ensemble* was very charming. The detail of an exhibition of birds was new to the proprietor, but the business-like way in which he coped with his difficulties pleased me immensely. He was assisted very efficiently by Mr. Bailey, of Thirsk, who also officiated as Judge of the foreign birds; indeed, he remained the entire week of the Show as custodian-general and professional adviser, so anxious was Mr. Clapham to take all possible care of the valuable specimens entrusted to his charge. They included in most of the classes the first-prize winners of the year, Moore and Wynne being first with their Clear Joquee Norwich, which, minus a tail, could not compete successfully at Sunderland, but with 0.75 of a tail ran equal second at the Palace, and at Leeds, in the full bloom of condition, beat one of the first birds of the year, and—I have since been informed died—died with his first prize nailed to his cage: perhaps as fine a specimen of a Clear Joquee Norwich cock as ever was caged. Both "fit," it might have been a near thing between him and the second prize, but condition and plumage are strong points, and the little beauty certainly was preponderant with true Northampton polish.

Mr. Bexson showed a good Buff (third prize) in colour, but I thought him rather deficient in meal. Mr. Walter stood first and second in this class. A friend writes me, "Popular opinion was in favour of Mr. Bexson's bird." Another friend writes that fanciers in his town say they have "better Norwich than were shown at Leeds!" Popular opinion is fickle, but I will just whisper in Mr. Bexson's ear Mr. Walter's own verdict—"I have him easily for first, but I think he has a pull over me for second." Walter never gets any farther than *thinking*, but when he looks you full in the face with his big eyes, and says he *thinks* he is a step too high, it is well to hold a consultation with yourself, and see whether you may not have made a mistake. And perhaps I did.

In the Variegated classes Moore & Wynne had it nearly all their own way, though both Walter and Bexson carried off second prizes with neat specimens, the Ticked Buff of the latter being a remarkably fine bird.

The Buff Created were very superior, but I cannot say so much for the Joquees. Mr. J. S. Switthbank, of Bradford, was second with a bird of wonderful quality; and Dr. Waller, of Anerley, Surrey, showed a heavily marked but fine Crested bird. I saw it at the Palace and longed for it, and it caused me just the slightest pain when I met it again at Leeds, and I rubbed my eye the highstone staircase leading to Mr. Clapham's library, not to fly to the tomes and stimulants kindly placed on the table for strangers from a distance, but to ask the price. I returned to the conservatory and went no more near that cage, lest I might do something rash.

Belgians were all second class, but the winning birds good of their kind. A dirty-looking bird in a small cage manufactured from a cigar-box lost the first prize mainly from not having room to extend himself.

In Joquee London Fancy Dr. Waller was first with a very good specimen, but in Melanes there was no competition.

Lizards were good, very first-rate both Gold and Silver. Mr. Young was first in each class, Mr. Stansfield and Mr. Ashton being second with most excellent birds.

Mr. Bexson, as usual this season, was first for Cinnamons, Joquee and Buff. I gave them their maiden winning honours at Whitby last September, since which they have had almost uninterrupted successes. I hope their children may be worthy of their illustrious papa and mamma. Variegated Cinnamons were not numerous, but Mr. Young's first was rich.

The "Any other variety" was a capital class, nearly every bird being mentioned. The winners were, first a fine Copy (W. Shackle-

ton); second, Glasgow Don (Mr. Ashton); third, Variegated Yorkshire, (W. Heap).

The Mules were very numerous, and included the best birds in the Exhibition. Messrs. Ashton and Young being the most successful competitors. Mr. Stansfield was an easy winner in "Any other variety," with his Bullfinch and Goldfinch hybrid—a lovely bird.

The Foreign Birds were a most attractive feature in the Show, but Mr. Clapham's private collection was an exhibition in itself, consisting of large Scaled Macaws, White Cockatoos, Lemon-coloured Cockatoos, Lovell's Parrot, Senegal Parroquets, and a host of smaller birds "too numerous to mention."

My duties over, I returned home, mid Manchester, staying Saturday night and Sunday at Polefield Hall. My recollections of this last Show of the season, somehow or other, seem connected with my climbing into a high bed as large as a parish church, and waking up in the morning and hearing a chorus of little voices in the nursery—

"Little children will be there."

And those who have little children there can enter into the simple refrain which followed. Then I seem to recollect how the small chorus (one hardly out of its nest feathers) stood in the porch, turning up their rosy little faces for a kiss from mamma before we went to church. And I remember a walk round the garden and making fault with the Strawberries—fully grown, very badly grown; a bonafide of Roses; a lot of immense Ducks, which, either because it was Sunday, or because of corpulence, seemed to take things very easy—all but one old drake, who ran about as if he was training for a swimming match; a white fox terrier, a sort of canine batler, which carried empty soda water and other bottles out of the room, and indulged in a little leg-dance, swallowing lighted paper—a conservative dog, also, which gave three cheers for Disraeli, but whose political morals I corrupted, and by bribery and gentle moral suasion induced to cheer lustily for Gladstone. I remember much kindness and hospitality all mixed up with a most pleasurable flying visit; and I remember leaving Manchester by the 12.30 mail on Sunday night, and seeing "Jacky" sitting up in bed next morning at six o'clock, asking me what I had brought him home from Leeds.—W. A. BLANSTON.

## BEE EPIDEMIC.

WHAT is the cause of bees dying this month by hundreds outside their hives while they have a good stock of honey remaining? I find that this is the case with my own bees as well as with those of almost every person in the neighbourhood. I had a good stock of my own in a bar hive, well protected from cold by cloths and boards; they played from the beginning of the month up to last week, and I found hundreds dead outside daily until they ceased to play. When I lifted the hive, I found the few remaining (about a small cupful) quite dead, and upwards of 20 lbs. of fine honey remaining. I could not perceive any damp, spider, or moth, and the boards were quite clean, having placed a new board a month ago and kept the others clean during the winter. I find my neighbour has a bar hive with two large supers (a drum, and a large hive on the top of that), which was quite full of honey in the fall, weight about Christmas 160 lbs. Last week the bees played for the first time since Christmas, and every day my neighbour finds hundreds dead in all directions in front of the hive. They have been well protected through the winter inside a room, and entered from a hole in the wall. To all appearance he will not save a bee. I have examined several other straw hives in the neighbourhood and find a great many bees dead, with a quantity of honey remaining, and those that are alive are dropping around the hives and dying.—A YOUNG BEGINNER, *Newton Abbot*.

This disease seems to be nearly, if not entirely, identical with the "bee plague" which during the last two years has devastated many of the apiaries in Kentucky and other parts of the United States, and appears thus far to have defied the ingenuity of our trans-Atlantic brethren who are apparently unable either to discover its cause or to suggest a cure. We, however, think it not unlikely that it is identical with "droupy," the nature and cure of which were first described by Mr. Woodbury on the 26th of December, 1865, and which has been more recently referred to by "B. S.," in our number for the 16th September last.]

## OUR LETTER BOX.

ACERINSION SHOW.—This Show is to be held on April 7th, not on April 21st, as stated in the advertisement last week.

WHITEHAVEN SHOW.—In answer to "R. D. B.," I can say, for one, that had I not threatened, after having written several letters, I should, no doubt, have been without my sale money yet, and it took twice to send £1 10s. 6d. for two pairs (less the commission), the Secretary having omitted one pair on the first occasion. It is now three months since the Show, and I never asked for the money until two months had elapsed, and it took them up to Saturday last to complete the amount.—THOS. KYLE, *Durham*.

**BRAMA POOTRA'S WING FEATHERS (T.L.).**—Nothing is more common than for a Brama Pootra cock to have on the side of the wing feathers like that enclosed. They are consistent with perfect purity, but not desirable. They are not always hereditary.

**FOWLS FOR A LIMITED SPACE (E.J.).**—For laying, you cannot do better than keep Houdans, Spanish, or Greys-Cornes, as they do not sit. You are right in supposing that only pullets will lay through the winter. As you cannot rear, you must buy early pullets every year. Those hatched in April will lay well, and if you keep them well, the pullets bought in September should, when they have ceased laying in March, sell well enough to make the difference between buying and selling trifling when the eggs are taken into consideration.

**FOWLS FOR LAYING AND TABLE (In Old Subscriber).**—Cochins or Brahmas will suit you. They will lay and do very well in the space you mention; but if you desire chickens for the table, you will want more space than you mention, and must allow the hens with chickens to be in the garden itself. They will do no harm.

**DIARRHŒA IN FOWLS (A Hamburgh Breeder).**—Leave off giving them the seasoning of spice you mention. Give lettuce leaves, and a diet of oatmeal made into a paste with ale.

**HAMBUCH FOWLS (J. M.).**—There is no book relative to them exclusively. In the "Poultry Book for the Many," you will find what you require. You can have it post free from our office, if you enclose seven postage stamps with your address.

**LIME WATER FOR EGG-PRESERVING (Rab).**—A pint of lime to a gallon of water will be ample. The water will dissolve very little of it. Any lime fresh from the kiln will answer.

**SUBSTANCE IN AN EGG (H. C. J.).**—That which you enclosed is one of the albuminous cords connecting the yolk with the white. It is preternaturally enlarged and hardened.

**EGG-EATING HENS (H. J. H.).**—You must watch your hens, and race with them for the egg. It is a very common fault. The best remedy we know is to put numbers of very hard initiation eggs in their nests and about their haunts. The birds peck at them till they are tired and their beaks are sore. It is generally supposed they eat them for the shell, because the shell is easier for forming it. Small heaps of bricklayers' rubbish scattered about their haunts, and a liberal supply of ground oats and lettuce, are the best cures we know.

**JAPANESE BANTAMS (Idem).**—The Japanese Bantams are small, with ample tails and combs. They are nearly white, having only the tails, fluffs, and sometimes the hackles black. They have very short legs and as they carry their wings drooping, none are visible. They are marvellously tame, are good layers, and said to sit well. Their cheerful habits make them favorites every where.

**SPANISH WITH RED COMBS (G. M. H.).**—The rose comb is never bred from pure Spanish, but the law of squancy is very strong in all country. It is in our opinion more so in Spanish than any other. They will almost always show traces of any strange bird that has been in the yard with them during the breeding time. We once had a roan of Spanish spoiled by allowing a yellow cock to be in the yard with them.

**TUMOURS ON FOWLS' HEADS (W. W. W.).**—We have often seen the swelling you mention on the face of a Cochins, but seldom on a Dorking. These tumours are of two kinds. If, when opened, they are full of blood they are curable, if of a cheesy substance they are not. There is no necessity to have a surgeon attend to them. They may be allowed with impunity to convert either with Cochins or Dorkings. They will be as strictly separate as if divided by stone walls.

**DECKS (R. M. W.).**—The cross you mention would succeed. Both your communications are too discursive for publication.

**HIGH-FLYING TUMBLERS (E. P. Penance).**—Your Tumblers may be inherently skittish, or may have acquired the habit of kite-sitting, from feeding pecking, and in the brewery yard, after the manner of common dove-like Pigeons. In either case they are hopelessly worthless for flying as Sky Tumblers. If constitutionally skittish (bred from mere slate birds) they cannot be trained to fly, and if habits of rooster-picking have been acquired, they would be more likely to contaminate any stock introduced to improve them, than to follow the snit of any such stock in flying properties. Your birds, too, may be too close-bred, like the Short-faced stock Tumblers, to have strength for high flying, though they may fly low and turn well, and do a good deal of harm. If of the latter nature, if, indeed from a mixed colony of Pigeons, and still tumble freely. Both such sorts are called "duffers," "hoaters," "sailers," and "skaters," meaning low skimming flyers; and when they tumble and lower at such tumbling, they are called "hoaters." If they are of the latter nature, their flight. All such birds are worth nothing, save as slate and yard stock, for brood and table use, along with the common dove-like Pigeons. You must have flying blood from flying stock in practice, begin anew, and eradicate any bad habits in your flock. In your flock, you have a few pairs (three or four pairs), of good last season's birds, that have never paired and nested, and confine them until they do pair and nest, and incubate, the pairing and nesting being a natural means of staying them. But a case, some 2 or 3 weeks in the future, of the lot of the unfortunate is advisable: from this the birds, during their confinement, can survey the roof and neighbourhood of their new home on all sides, and thus know the place before they are trusted on the wing. When so trusted it is necessary for safety and security, if avoidable, to let them fly over their own way out (the cage left off and in secure parts, and the birds driven). They should not be flown until settled by nests, young birds, and intimacy with home, for two or three months at least. Never let them loose in foggy or windy weather, otherwise they will be lost. When permanently settled, supply their food by their own right after their flight, that they may have their breakfast by daylight; it will be digested before letting-out and flying, at any hour from 8 to 12 A.M. (the best hours), giving them, however, some vetches sparingly, for support, just before they are let out to fly. This does not prevent them from flying, and the birds, returning to the loft after a fly (but of course line roof-pecking awhile, which is essential to health) for their mid-day or evening feed; the former in breeding time at mid-day, the latter in the evening, and not in breeding time, this feed being given only. For support, they may now vent outside lacy habits (dove-like style), using small grey peas and wheat two parts) and vetches one part, mixed. Place clean water and gravel inside, and a bath of shallow depth on the roof, for bathing occasionally. Green food, as pea stalks, broccoli, clover, or any barneous greens,

given inside, now and then are healthful—useful, indeed. Pair never again, and success will follow. Apply to Mr. H. Yardley, Pigeon-dealer, &c., Market Hall, Birmingham, for a few Birmingham high-flying rollers, which, at 6s. to 7s. 6d. per pair, pair for your new stock. The high-fliers (not roller pure) are a crossed Roller and Tumbler class. —READER.

**PIGEONS DYING (A Subscriber).**—We quite agree with the judge who has seen your birds, "that they ought not to die in such casual accommodation." If they had their liberty, we should suspect poison. Let a skilled chemist examine the crop of the next bird that dies. This three months of evil mind is responsible for ailing to the deaths of many, brood, and bird.

**PROPOLEIS FORTIFICATION (G. Wilson).**—Although certainly remarkable, the propolis being very uncommon in the occurrence of propolis fortifications, of which, in fact, we have ourselves witnessed no instances. As Dr. Bevan states, "The term propolis is derived from the Greek, and signifies 'before the city,' bees having been observed to make use of it in strengthening the outworks of their city."

**LEUCŒA QUESADA (An Irish Subscriber).**—Write direct to Mr. Woodbury, at Mount Kilduff, Exeter, for information respecting Letician Quises. Get "Bee-keeping for the Many" which may be had direct from this office post free for five stamps, also "Profitable Bee-keeping," published by the Society for Promoting Christian Knowledge, which, in describing "bucket bees," will afford a hint as to making cheap hives out of the halves of fresh butter-tins. Bell-glasses are usually the cheapest when obtained direct from the glass houses where they are made. Black-breasted Red Game fowls are the variety we prefer.

**CREAT HENS (S. R.).**—From 15s. to 20s. are not prices coming within the means of our correspondents who require for a cheaply depriving live.

**ADDRESS (Inquirer).**—T. W. Woodbury, Esq., Mount Kilduff, Exeter.

**PRESERVING PEAS GREEN (Willm).**—They may be preserved until the next spring if some of the summer crop are treated as follows:—Pick them when full grown, shell them, dry them gently but thoroughly, and then store them in canvas bags in a dry place. When required for use, soak them in water for a few hours until plumped up, and then boil them. The following mode has been reported to us by a person well qualified to judge of such matters as being very successful:—Carefully shell the peas, then put them in tin canisters, not too large ones; put in a small piece of alum, about the size of a horsebean, to a pint of peas. When the canisters are full of peas fill up the interstices with water, and solder on the lid perfectly air-tight, and hold the canister for about twenty minutes; then remove them to a cool place, and they will be found in January but little inferior to fresh, newly-gathered peas. Bottling is not so good—at least we have not tried it so; the air gets in, the liquid turns sour, and the peas acquire a bad taste.

## COVENT GARDEN MARKET.—MARCH 30.

The advance in last week's prices has been barely maintained, and to effect sales some reduction has had to be submitted to in such articles as Kidney Beans and Cucumbers, which are in excess of the demand. The sale of the potato has been much influenced by the prevailing cold weather. The Potato trade remains much in the same condition as in the previous week. Broccoli from the Continent, the Channel Islands, and the Continent, continues very good.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	3 to 6	0	Mulberries.....	quart. 0 to 0
Apricots.....	doz. 0	0	0	nectarines.....	doz. 0 0 0
Cherries.....	lb. 0	0	0	Oranges.....	doz. 0 0 0
Chestnuts.....	bushel 10	23	0	Peaches.....	doz. 0 0 0
Currants.....	1 sieve 0	0	0	Pears, kitchen.....	doz. 4 0 0
Black.....	doz. 0	0	0	do.....	doz. 0 0 0
Figs.....	doz. 0	0	0	Pine Apples.....	lb. 8 12 0
Filberts.....	doz. 0	0	0	Quinces.....	1 sieve 0 0 0
Gobs.....	lb. 0	9	1	Raspberries.....	lb. 0 0 0
Gooseberries.....	quart. 0	0	0	Strawberries.....	doz. 1 6 0
Grapes, Hothouse.....	doz. 0	20	0	Walnuts.....	bushel 10 16 0
Letts.....	doz. 0	10	6	do.....	£100 10 2 0
Melons.....	each 0	0	0		

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	doz. 3	0 to 6	0	Leeks.....	bunch 4 to 0
Asparagus.....	£100	0	0	Onions.....	doz. 0 0 0
Beans, Kidney.....	doz. 2	0	3	Mushrooms.....	doz. 2 0 0
Broccoli.....	bushel 0	0	0	Mustard & Cress, punnet	0 2 0
Brood.....	bushel 0	0	0	Onions.....	doz. 0 0 0
Brussels Sprouts.....	1 sieve 0	0	0	Parsnips.....	quart. 4 0 8
Broccoli.....	bundle 1	0	1	Peas.....	sieve 3 6 5
Cauliflower.....	doz. 0	0	0	Peanut.....	quart. 0 0 0
Celery.....	bundle 1	6	2	Potatoes.....	bushel 2 0 4
Coleworts.....	doz. bunches 3	0	0	Radishes.....	doz. bunches 1 0 0
Cucumbers.....	doz. 0	0	0	Spinach.....	doz. 0 0 0
Endive.....	doz. 2	0	0	Seakale.....	basket 2 0 0
Fennel.....	doz. 0	0	0	Shallots.....	lb. 0 0 0
Garlic.....	lb. 8	0	0	Tomatoes.....	doz. 0 0 0
Herbs.....	bunch 3	0	0	Turnips.....	bunch 4 0 0
Horseradish.....	bundle 3	0	0	Vegetable Marrows.....	doz. 0 0 0

## POULTRY MARKET.—MARCH 30.

We have but a short supply of young and good poultry. There is, however, little trade, and consequently, prices are not so high as they would be after the long trying winter we have had.

	s. d.	s. d.		s. d.	s. d.
Lance Fowls.....	4	0 to 4	0	Partridges.....	0 to 0
Small ditto.....	4	0 to 4	0	Guinea Fowls.....	0 0 0
Chickens.....	2	6	3	Pigeons.....	0 0 0
Cockrels.....	7	0	8	Hares.....	0 0 0
Turkeys.....	0	0	0	Rabbits.....	1 4 1
Ducklings.....	3	6	4	Wild ditto.....	0 9 0

## WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 7-13, 1870.	Average Temperature near London.			Rain in last 48 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	a.	
7	TH	PRINCE LEOPOLD BORN, 1833.	57.7	36.8	47.3	21	24	45	41	46	59	48	14	40	6	2	10			97
8	F	Cambridge Lent Term ends.	56.1	35.8	46.0	23	22	5	43	6	39	9	12	1	7	1	53			98
9	S	Oxford Lent Term ends.	55.9	35.3	45.3	22	21	5	44	6	32	10	5	2	3	1	36			99
10	SUN	PALM SUNDAY.	55.9	33.5	44.7	16	18	5	45	6	37	11	52	2	9	1	19			100
11	M	Meeting of Royal Geographical Society.	56.0	35.2	45.6	29	15	5	46	6	after.	29	3	10	1	1	3			101
12	Tu		55.8	36.4	46.1	27	13	5	48	6	12	2	1	4	11	0	47			102
13	W	Meeting of Royal Microscopical Society.	55.6	33.9	44.7	17	11	5	50	6	52	3	31	4	12	0	51			103

From observations taken near London during the last forty-three years, the average day temperature of the week is 56.0°; and its night temperature 35.3°. The greatest heat was 79° on the 7th, 1853; and the lowest cold 20°, on the 10th, 1860. The greatest fall of rain was 0.73 inch.

## PLANTS FOR DECORATING A GRAVE.



FTEEN has an appeal been made to the Editors of "our Journal" for an opinion upon this subject, and they have answered briefly, as occasion required, in their replies "To Correspondents," but I wish to offer some comments more generally applicable.

Nothing better can be said of anyone than that he or she always does what is fitting, and no more depreciatory observation of anyone can be made than that he or she rarely does things as they ought to be done. I knew a gentleman, long since dead, who insisted on his bride putting on a black petticoat beneath her wedding dress, but this was not more incongruous than the pots of gay flowers which I have seen about many a grave. Far be it from me to say that they were not placed there by the hands of truly-loving ones, but gay flowers are not fitting accompaniments of a grave, though not unsuitable to a ball-room—no one would wear at a funeral the costume worn at the deceased's wedding.

When one we have loved, and will never cease from loving, is consigned to the grave, our grief, if deep, would no more permit us to consider with what we should decorate that grave, than we should think of giving utterance to our grief in verse. When I see chaplets of flowers put upon a newly-made grave I know that the thought will be suggested to most visitors—"There may be grief, but grief that would be known." This is no censorious conclusion, but the consequence of acting unfittingly—real grief is at first silent and unostentatious. Time moderates that grief, and when time has tested it, proved it enduring, then the mourner is in a state of mind more capable of deciding on memorials fitting not only to the dead, but to other survivors besides the mourner.

The simplest decoration, and to my mind the most fitting decoration of a grave, was a marble cross with a plant of living Ivy twining around it. There I felt a literal illustration of Shakespeare's utterance, "There are sermons in stones." Gaudy flowers—flowers of any kind—seem to me inappropriate around a grave, even the grave of a child, for the inscription records its early death, and there is no sufficient fitness in the transient flowers: for the decoration should tell of things more enduring, whether in reference to the after-life of the dead, or the sorrow of the survivors. Rosemary is an evergreen, and that master of congruities, Shakespeare, tells, "That's for remembrance." The Pansy, too, is evergreen, and the same master says, "That's for thoughts."

It is quite true that the heart of the mourner should decide the decorations of a grave, but that mourner would do well to consult good taste to regulate the demonstrations suggested by affection. If flowers are preferred, I think they ought to be the simplest and the least obtrusive in colour and size. The Snowdrop, the Primrose, and, above all, the Violet, should be adopted, for this last-named is evergreen, fragrant, and unpretending—characteristics suitable for all who are on a level in the grave.

It is rarely possible to place by a grave any plant emblematic of its tenant. Three Lombardy Poplars were planted in a garden by a brother to commemorate his three tall sisters—such would have been inadmissible in a graveyard, and even where they were they were rendered ridiculous by having their stems blackened. One instance I know of emblematic grave-decoration that is in no way offensive. In an Essex village churchyard rests an officer of the 48th Regiment, selected by the acclaim of his comrades to lead the first detachment across the Douro in the face of Marshal Soult's opposing army. Lord Wellington directed him to place a sprig of Laurel in his cap; and at his grave's head well may grow a plant of Laurel, appropriately kept dwarf by annual root pruning, for he was one of the most unpretending of men.

A commemorative plant might appropriately adorn the grave of him after whom it was named—the *Linnaea borealis* might be fittingly around the last resting-place of Linnæus. *Beatonia purpurea* might as justly be by the grave of Donald Beaton, if it were sufficiently hardy.

Evergreens trainable over a grave are *Vinca minor*, *Cotoneaster microphylla*, *Bridgesia spicata*, and *Creeping Ivy* (*Hedera helix humi repens*). Dwarf evergreens that may be around are *Berberis Darwinii*, Box, various Heaths, and *Ruscus*, or *Butcher's Broom*. Of Conifers I think none so suitable as the Irish Yew.

I have purposely abstained from mentioning some plants which I would admit to the grave's side, because they are particularised—so well particularised—by a country clergyman, and though I differ from him in some of his details, yet I will ask you to republish his notes.

"... in our last decay,  
Memorials prompt and true."

"Among all the purposes of pleasure and ornament to which the culture of flowers may be applied, few persons seem to have considered them in reference to the memory of those friends who have left us to join the Church Triumphant. In some wild and, therefore, poetical regions of our island, the custom of dressing graves with flowers has always been preserved, in others it is reviving, and it is very attractive to those in humble life, who certainly feel less dread of death than those who are called their superiors. In a neighbouring churchyard, the green mounds are adorned at Easter by cut flowers inserted in the turf, in the form of a cross, and when well watered they retain their beauty for many days. A narrow border on each side, well filled and neatly kept, may be a source of much pleasure, and may preserve in the minds of the young a pleasing remembrance of those who loved them once. Never fear that the village children will rob or injure these little gardens; the experiment has been tried; they will soon be busy in imitation round the graves of their own friends. But, then, never introduce any plant of value, which may excite a covetous thought. Avoid, also, those which require frequent tying up, or other attention, unless you can promise yourself to continue a frequent attendant on the weekly services. Not by even the semblance of voluntary toil let the Lord's Day be profaned; but other seasons will afford opportunities for 2

few minutes of gardening, and for plucking a blossom to bear away in thankful remembrance of those who are in peace.

"Various plants may suit various feelings and circumstances. One flower may have been the favourite of the departed; another, by its delicacy, its brilliancy, or its fragrance, may present some fancied resemblance to his character. Some are by tradition annexed to different qualities, as—the Lily to innocence; the Violet to modesty; the little Wood Sorrel is said to signify parental love; the Clematis that of a child to a parent; and the Woodbine that of a brother or of a sister. Round the grave of an infant we might place single Snowdrops, so much more graceful than the double; or the bright Aconite, the first to bloom, and the first to fade. When these have passed away, let us sprinkle a moored of Mignonette seed, which will afford us many a sweet blossom to take into church. Mignonette and Sweet Verbenas are unlike most earthly pleasures, which require economy and self-denial to lengthen out their existence, for the oftener we indulge ourselves with cropping the tops of these, the more freely the plant sends forth new and delicious shoots. For the resting place of a young female every one will think of a Rose, and no Rose can come amiss; but there is one whose name signifies beloved (Aimée Vibert) of which the glossy evergreen foliage, pure white flowers, and pink-tipped buds, produced without intermission from July to winter, seem peculiarly appropriate.

"Against the tomb of the village pastor we would place the Christian's plant, the Passion Flower, emblematic of that subject on which he loved best to dwell while we listened so often to his honoured voice. The azure rays around the graceful central column represent the glory which belongs to the sacred objects there suggested, but it is not easy to discover the cross. The writer had often sought for it in vain, till, while holding the flower on the road to church, a sunbeam suddenly revealed it. It is the shadow, which forms a very beautiful cross, if so held that one of the three stigmas should appear higher than the others, and form the upper part. Thus, if we train the plant against a grave-stone, the holy sign may fall upon it, and by simple means we may imitate the beautiful idea which, in suspending the sacred emblem above the resting place of the Rev. William Adams, has cast upon his tombstone "The Shadow of the Cross." Another plant, suggestive of high and holy thoughts, is the Iris, or Flag-flower. In ancient church decorations a frequent ornament is the three leaves bound together, which are called the Fleur de lis, and supposed to represent the Most Holy Trinity, but it is not the Lily, as the name imports, but the Iris, which is so imitated, as must be obvious if the flower is inspected. The Forget-me-not, the Pansy (*penée*, or reflection), the Balm of Gilead, and the Everlasting, would be appropriate to any grave border.

"Another thought in reference to this memorial is, that gardening may be pursued by planting the grave of a friend with some flower which may be in beauty at the season of the year in which that friend entered into his rest. To ourselves, the anniversary of a bereavement is apt to bring very mournful thoughts. But will not these appear earthly and selfish if, on visiting the sacred spot, we find it glowing with the brightest hues of nature, as if the earth which holds the loved form were striving to equal the glories of that Paradise which holds the loved spirit?

"For this purpose, if the season be May, a root of *Gentianella*, the rich blue of which is called the colour of constancy, may be chosen; for June or July, a Rose bush, or perhaps a root of the double-flowering Sweet-briar, or of the Fairy Rose, which will open still earlier. For the succeeding months there are endless pretty annuals which may be sown as to flower at the proper time, and autumnal Roses, whose bloom may be improved by cutting off the buds in June. Then may follow *Chrysanthemums*, and in the very depth of winter there are Russian Violets, Christmas Roses, a Holly, or a *Pyrus japonica*, either tied to the headstone or pruned as a bush, in which case it will flower later; and all our darlings of the spring complete the year again."—G.

## GRAFTING APPLES AND PEARS UNDER THE SURFACE.

Two years ago I tried grafting Apple and Pear trees thus, and the result was 90 per cent. of the grafts took, the scion rooting in nearly all cases as well as the stock. Some of the slower-growing kinds of Apples are well set with fruit buds, and the rest, to all appearance, bid fair to produce a good crop of fruit next year. It is a question with me whether the root-

ing of the scion will not tend to prevent canker, to which some of our best varieties are so subject. The mode of proceeding is simple; I whip-graft the stock, and bury the junction just below the surface. No claying nor waxing is required. The work can be done in the dry.—J. WHEAT, Gardener to E. F. Brander, Esq., Benhill House, Sutton, Surrey.

## WELLINGTONIA GIGANTEA FAILING.

In No. 439 of vol. xvii. of this Journal there appeared a communication from Mr. Robson, of Linton Park, relating the probable decline of the Wellingtonia. The description gave of the appearance of his trees at that time caused great anxiety for the future welfare of the trees under my care, not only because they presented an appearance very similar to those described, but since the dry summer of 1868 I had noticed a conspicuous falling off in their attractiveness. In the September of that year most of the trees here—upwards of a dozen, large and small—shed the greater part of their inner foliage, and continued to do so at intervals up to last autumn, or, I believe, till nearly Christmas. During these two seasons the remaining foliage gradually lost most of that green colour so characteristic of the plant in a healthy state, and, with two or three exceptions, the growth of the trees, including that of their leaders, was considerably less than in former years.

Mr. Robson speaks of only one of his trees being affected, and that so seriously as to have lost one or two of its branches; but although all the trees here are more or less injured, no branches have died, nor do these show any signs of dying, but the trees exhibit such an unusual appearance as to create alarm, and induce one to search for a clue to the cause of their partial decline. With this object in view, I have watched the trees most carefully, and have studied all the circumstances I thought likely to influence their condition, but so far as my own trees are concerned (and I have seen no others) I am unable to discover anything so likely to bring about such a result as the severe drought of 1865 and the critical summer of 1869. I have since found some things to strengthen my opinion. Last month I was ordered to destroy three specimens of the Wellingtonia that were brought here and planted in the autumn of 1865, and when the men were digging out the roots I was surprised to find some of the soil about them nearly dry. This may not be so surprising, seeing that at planting time the trees had several hundredweight of soil in one mass about their roots, and there was a difficulty in thoroughly soaking the ball with moisture, even if applied artificially; but considering that the Wellingtonia is a fleshy and vigorous-rooting subject—the roots very much resemble those of a Vine—and that its roots run very near the surface, one can hardly imagine the injury such a plant must sustain if growing in a soil even half so dry as that above described.

The healthiest tree here is about 21 feet high, and covers a space 44 feet in circumference; it is at present very symmetrical, and is growing in a dark retentive loam several feet in depth, brought there for the purpose. This tree, from being near the water, has always had a good supply of moisture; this fact, and its having a good deep soil, are in my opinion sufficient to account for its healthiness. Neither of the other trees has had these advantages. We have another specimen 3 feet higher than that just named, and which exhibited all the signs of a healthy tree until the summer of 1868, although it is growing on an embankment sloping sharply to the south-west, and in the poor clayey soil of the locality. If it had been possible to have given this plant the quantity of water it required, I think it would have escaped uninjured.

I consider the Wellingtonia, with regard to water, to be similar to a large Heath or *Epacris* in a pot—that is, if it is allowed to become at all dry no amount of watering at the time will prevent its showing signs of distress. I think it wants, as regards water, should be anticipated by an abundant supply.

From the trees here having thriven in both good and bad soil up to the summer of 1868, I think that, should a more favourable growing season be in store for us, we shall see the trees affected fast recovering themselves; in fact, I have noticed them more than once making an effort to do so, by shoots breaking out exactly where the others came off, and I shall wait patiently to the end of another season before I conclude that the Wellingtonia is suffering from constitutional debility. I think, however, that after the trees have arrived

at a certain size we must be prepared to see them inclined to deviate from their original shape by breaking into irregular growths at different parts of the tree, indeed, the two trees above described are doing so already; many of the branches towards the bottom of one side of each tree, instead of remaining in a recumbent position, are turning upwards at their extremities, and each has formed a leader both straight and strong. Now, if these be allowed to grow, the trees will most likely become one-sided and unsightly, therefore I think it quite probable that before many years pass away the Wellingtonias at present planted will have to submit to a judicious system of pruning, by taking out these side leaders down to the first set of small branches. Doubtless Mr. Robson, from his great experience among Conifers, has had to deal with similar difficulties in other species, if not in the Wellingtonia. I shall, therefore, be glad if he will state whether such a remedy is likely to have the desired effect, and also if it is the proper one to apply.

Perhaps some who read this communication would like to hear why the three Wellingtonias I have mentioned were destroyed; it was because they had not done well from the time they were planted. The moving of this plant is at any time of the year a very hazardous speculation; whether the trees are of large or moderate size, they are very apt to die off without any apparent cause; immediately the roots are cut they droop, and seem incapable of being revived. My advice to intending planters is to select small trees, such as have arrived at just sufficient size to show that they will be of good shape, and vigorous.—THOMAS RECORD, *Lillesden*.

#### WINTER-FLOWERING BEGONIAS.

The small-leaved section of Begonias, grown for the beauty of their flowers, are, when properly managed, amongst our most useful winter-blooming stove plants. A dozen plants are as many as I can find room for, but these, cultivated as I shall describe, never fail to give me a weekly supply of blossom and foliage for vases and bouquets throughout the winter. The pendent flowers of Begonia filiculoides are very attractive when hanging over the edge of a white or blue vase, while the foliage of such kinds as Begonia fulgens and insignis forms an elegant and appropriate bottom row or foundation to a bouquet composed of a few blossoms of Tree Carnation, Cyclamen, and a Camellia or two, with a few sprigs of *Panicum variegatum* to impart the requisite lightness.

Grown into compact specimens and kept in the stove till the flowers are just beginning to expand, the plants may then be taken to the conservatory, where they will continue in full beauty for a considerable time; and after their flowering is over, which will be about the end of February, cuttings may be taken off, and the plants thrown away at once, unless, indeed, huge specimens be desired. Such may easily be obtained by giving two or three liberal shifts in spring and summer, but otherwise, plants a year old, and that have blossomed all the winter, had better be out of the way at once, for old plants kept in the same pots from winter to winter become worthless, and it is vain to expect from them any blossom worth looking at.

Sufficient cuttings being taken off in March, they are placed in a forcing pit or on a brisk hotbed, where they emit roots quickly and in great abundance; they are then potted in 3-inch pots in a light rich soil consisting of equal parts of loam, well-decomposed dung, peat, and a double portion of sand, with a liberal admixture of small pieces of charcoal. The top of each plant is pinched off, and they are replaced in the propagating bed for about a fortnight, and then taken to a vinery at work, which is sufficiently advanced to afford a genial growing temperature. While there they are shifted into well-drained pots a size or two larger.

A slight damping with a syringe once or twice a day, careful but abundant waterings, and attention to keeping the growth well under command by pinching, are the simple, yet most necessary, points of culture.

About the middle of June the plants receive their final shift into 10-inch pots, and are placed in a pit without any artificial heat, but in which, by careful ventilation, a genial temperature is easily maintained. The plants will there thrive, and by careful training will become handsome specimens by autumn, when they may be removed to the stove in full health and vigour, and will quickly come into bloom; and with the assistance of an occasional watering of moderately strong liquid manure, they continue to grow and blossom throughout the winter.

I have been induced to give these few simple cultural details from having met with several instances of failure in the culture of this useful class of plants, arising, as I have found on inquiry, not from carelessness, but from ignorance of the proper mode of culture.

It is hardly necessary to state that the young plants might have been grown with greater ease and less care in the stove from the first, but persons with limited space are very glad to avail themselves of any contrivance which enables them to relieve their crowded houses. A small stove is one of a gardener's trials; for so many are the charming exotics claiming a place that overcrowding, and consequently weakly plants, but too often result, thus proving the truth of the w-mark that it is better to grow a few things well than to attempt growing more than one has space for, and so run the risk of spoiling the whole.—EDWARD LUCKHURST, *Egerton House Gardens, Kent*.

#### CAMPANULAS.

A few words about our Campanulas may not be out of place at the present time of the year. To speak of all the kinds of blue bells, white bells, and purple bells (Campanulas, if you please) would be beyond my experience, for they are such a very large family, and are so widely distributed, that it would involve much expense and require a large space to cultivate them. Many of them are well adapted to and used for in-door decoration, but it is on those suitable for out-door decoration that I wish to dwell at present.

They will succeed in almost all situations, but they do not like wet positions, nor too much shade; they are not very particular in regard to soil, but they like good treatment. Loam, leaf mould, peat, and grit or sand, suit them well, with a moderately dry situation, watering when necessary. They also require a little watching, for at times they disappear rather unexpectedly. Some of them, native of our own country, may frequently be seen adorning our woods, hedgerows, and fields with their blooms.

How beautiful are the large patches of *Campanula latifolia*, which we sometimes meet with in shady woods, peeping through bush and brake, the great spikes of large French-white bells seeming to say to us, "We'd rather bloom alone." It makes a fine display in the herbaceous border, and ought to be brought into more general cultivation.

Both the white and purple varieties of *Campanula glomerata* are fine border flowers. The double variety is very desirable. They have found their way into many collections, and ought to be in more. To see these flowers in the profusion in which they grow on the limestone in many places, is a sight not easily to be forgotten.

Some of the taller kinds of *Campanula* are well adapted for open spaces in shrubberies, and for back-row plants in large borders. Of such I may instance *obliquifolia*, *scuinata*, *lactiflora*, and *lanifolia*.

Among others of dwarfier habit may be enumerated *Campanula coronata*, one of the choicest gems of the family, and deserving of very extensive cultivation; no flower is more beautiful than *Campanula coronata*, with its beautiful white coronet-like flowers. It is of good habit, perfectly hardy, and of free growth.

*Campanula Medium*, or the Canterbury Bell, no garden should be without. It is a charming plant, both in its white and purple varieties; nor must the double forms be forgotten, for they are the admiration of all who see them. The seeds should be sown about midsummer, and the young plants potted or transplanted in the autumn when large enough, removing them early in spring to their blooming position, where they often form pyramids of bloom of various hues from 2 to 3 feet high.

*Campanula Verschaffeltii*, another fine border plant, attains from 2 to 3 feet in height, and produces very large purplish flowers. It is very attractive, of free growth, and with me quite hardy. It is a fine plant for in or out-door decoration, is worthy of every care that can be bestowed on it, and ought to be in all gardens.

*Campanula corymbosa*, *neglecta*, *stricta*, *crenata*, *grandis*, *ruthenica*, *urticaefolia*, *grandiflora*, and a host of others, ought to be more frequently met with among our border plants.

*Campanula pyramidalis* is another star, often grown for conservatory decoration, and is one of the very best of the family. It is raised from seed sown during summer, and the plants are grown in pots or transplanted. With us it has

braved the past winter in the border unprotected, and at present looks promising for the summer.

*Campanula nitida*, *cerulea*, and the double white and blue varieties of the latter, are very fine, and are often called by the common people "Rose-without-the-thorn," a name they well deserve. They are very fine when in good bloom, and by far too seldom met with.

*Campanula garganica* is a very useful little plant of very dwarf habit, well adapted for edgings, and especially for rock-work. It is of rather trailing habit, hardy, and of free growth, often yielding a profusion of beautiful blooms.

*Campanula carpatia*, white or blue, is an admirable dwarf bedding or edging plant, and appears to be at home in most places. With us it stands the winter, and is quite hardy.

*Campanula Loreyi*, white or blue, is a very desirable border plant. Being an annual, it is best sown in pots and the young plants forwarded in-doors. In the late spring months seed may be sown in the borders where the plants are intended to remain. They continue a long time in bloom.

There are others of this family well adapted for rockwork, dwarf edgings, and other purposes—for instance, *Campanula alpina*, *elegans*, *muralis*, *pubescens*, *pulla*, *Hostii*, *pumila*, *pumila* *alba*, and others, which are charming, though diminutive plants. When planted in masses their white and blue bells produce a charming effect. These dwarf and choice plants are deserving of far more attention than they now receive, and they will repay one well for any little extra care that may be bestowed on their cultivation.

*Campanula hederacea*, or as we have of late learned to call it, *Wahlenbergia hederacea*, is a very desirable plant on account of its novelty; British though it is, it is seldom met with, either wild or cultivated. It is a useful plant on damp rock-work, but is best protected in winter. Its ivy-like leaves and pretty flowers have an excellent effect.

Most of the *Campanulas* are increased by division; after blooming is the best time for propagation. The divisions should be planted in nursery beds in a rather shaded situation, and when established they may be removed to their flowering positions either in autumn or early in spring.—M. H., *Acklam Hall, Middlesbrough-on-Tees*.

## FORMATION AND IMPROVEMENT OF LAWNS, CROQUET, AND CRICKET GROUNDS.

In the first place, careful preparation of the ground proposed to be laid down to turf is necessary. This should be commenced by draining, if found requisite, and digging to the depth of 6 to 12 inches, according to the nature of the soil. When this has been done, the land should be levelled and made firm with a spade, and subsequently raked, to remove stones, &c. Should the natural soil be too stony, it will be advisable to procure a supply of good mould, and spread this over the land to the depth of 2 or 3 inches. If the soil is poor, some well-rotted stable-dung will be very beneficial. Where this cannot be obtained, we would advise, as the best dressing of artificial manure, 2 cwt. of superphosphate of lime, and 1 cwt. of Peruvian guano per acre. In March, after the ground has been made thoroughly fine and clean, a heavy iron roller should be used to make it perfectly level, and as the subsequent appearance of the lawn depends in a great measure on this part of the preparation, we cannot too strongly urge the importance of its being well done. The ground should then be evenly raked, and the seed sown. April and September are the best months for sowing.

As to the sorts of seeds suitable for garden lawns, &c., we can, after a long course of personal observation of the numerous kinds which have come under our notice, confidently recommend the following varieties as most certain to produce a close velvety turf:—

<i>Cynosurus cristatus</i> , Crested Dog's-tail	<i>Poa nemoralis</i> , Woodside Meadow Grass
<i>Festuca ovina</i> , Sheep's Fescue	<i>Medicago lupulina</i> , Yellow Trefoil
<i>Festuca tenuifolia</i> , Fennel-leaved Fescue	<i>Lolium corniculatus</i> , Bird's-foot Trefoil
<i>Poa pratensis</i> , Smooth-stalked Meadow Grass	<i>Trifolium repens perenne</i> , Perennial White Clover
<i>Poa sempervirens</i> , Evergreen ditto	<i>Trifolium minus</i> , Yellow Suckling

These should be mixed in their proper proportions, and sown at the rate of 3 bushels, or 60 lbs., per acre (English), or 1 gallon to 6 rods or perches.

After the sowing has been accomplished, the ground should be again rolled, and as soon as the young plants have attained the height of 2 or 3 inches, the whole plot should be carefully

gone over with a sharp scythe. Frequent mowing and rolling are indispensable to maintain the turf in good order. By adopting these means, a close green sward will be obtained in nearly as short a time as a lawn produced by turves, while it will be far more permanent, and at much less expense.

It will sometimes happen that annual weeds indigenous to the soil come up; these can easily be checked, if not destroyed, by mowing them off as soon as they make their appearance. Plantain, Dandelions, and Daisies, too, will often appear, and these must be cut up each singly about an inch below the surface (not deeper), and about a tea-spoonful of salt dropped over the cut part. Birds are very fond of grass seeds, and care should be taken to keep them off until the seeds are well up.

For lawns requiring improvement, it is only necessary to sow fresh seed, either in the spring or autumn, using a small-tooth rake and rolling afterwards. Moss in lawns is generally a sign of poorness in the soil, or a want of drainage; to effect its removal, we advise, after raking off as much moss as possible, a top-dressing of quicklime mixed with rich compost, applied in the winter, and a sowing of more seed in the spring; or a top-dressing of soot will, by encouraging the growth of grass, destroy the moss. This should be applied in the spring, at the rate of about 16 bushels per acre.

On croquet or cricket grounds, where the turf has become bare through constant use, we advise a thick sowing of seed on the bare spots in September, or early in March, rolling subsequently, and mowing as soon afterwards as practicable. A slight dressing of manure over the whole playing square will often be found beneficial in encouraging the growth of finer kinds of grasses, and help to produce a close-growing turf. We should not omit to mention that here, as in fine garden lawns, mowing alone will not ensure a good bottom without that compression which a roller alone can give.—(*Suttons' Amateur's Guide*.)

## ROYAL HORTICULTURAL SOCIETY.

APRIL 6TH.

NOTWITHSTANDING a frosty night—a frost of rather sharp frost even for this cold spring, and although the classes in which prizes were offered were few, and the prizes themselves only commensurate with one of the smallest of the Society's minor shows, everyone was surprised at the extent, the richness, and the variety of the display; indeed, it is not too much to say that it was the most charming spring Show which the Society has held of late years, likewise the most effectively arranged; and when the bright sunshine burst through the heavy morning mists, the day and the Show alike were thoroughly enjoyable. Notwithstanding a levee at St. James's and the great University contest on the river, the Conservatory, in which the Show was held, was filled by a large company in the afternoon, while earlier in the day their Royal Highnesses the Prince and Princess of Teck made a lengthened inspection of the exhibition.

Cyclamens formed one of the main objects of the Show, and several excellent collections were exhibited, presenting a very effective mass of bloom on the side of one of the stages, which they nearly filled. Class 1 was for the best collection, and in this Mr. Edmonds, of Hayes Nursery, was first with small but well-bloomed plants; and Mr. Stevens, of Ealing, second with a less numerous collection, but also well bloomed; while Mr. James, gardener to W. F. Watson, Esq., was third, all the exhibitors having some beautiful-colored sorts. Class 2 was for the best six distinct kinds. In this Mr. Turner, of Slough, was first with splendidly grown plants, and with flowers very numerous and very fine in colour. Mr. Edmonds, of Hayes, was second, and Mr. James third. Messrs. Dolson, of Isleworth, also exhibited in both classes.

Of Cinerarias, shown in Class 3, Mr. James sent the best nine, the second best coming from Messrs. Dolson. Among the varieties shown, Florence and Eclipsé, broad rosy purple-edged, Lord Eglon, rosy crimson self, and Mrs. Hardman, violet purple edge, were the most showy. The plants, however, in both collections were not remarkable. Class 4 was for the best six *Amaryllis*, but only one exhibitor came forward—namely, Mr. E. Baxter, gardener to C. Keiser, Esq., Broxbourne, and the flowers of his plants had been frost-bitten on the journey. One kind, named Beethoven, was a very deep scarlet flower. A first prize was awarded.

Among the miscellaneous subjects, of which a large portion of the Show consisted, the fine collection of pot Roses, fifty-eight in number, from Messrs. Veitch, of Chelsea, formed a prominent object on one side of the centre of the conservatory. The plants had very healthy foliage, and the blooms were splendid. Marie Banmann, Beauty of Waltham, Dr. Audry, Duchesse de Caylus, Victor Verdier, Souvenir de M. Poiteau, Madame Moreau, and John Hopper were especially noticeable for their brilliancy among the bright shades of red; while of darker shades, Mrs. W. Paul, Fisher Holmes, and Exposition de Brie, were very fine; and of light-colored varieties, Thyra Hammeric, Madame la Baronne de Rothschild, and Madame Noman were

very beautiful. From the same firm came also three stands of cut blooms. One of the composite side of the centre of the conservatory Mr. Ford had a number of his beautiful new Rose, Princess Christian, which has been noticed in previous reports as a variety of its excellence; and adjoining this collection Mr. Turner, of Slough, exhibited a number of his fine Azalea Mrs. Turner, which, though small plants, were covered with a profusion of large flowers. Messrs. Lane & Son, of Great Berkhampstead, also sent a numerous and fine collection of pot Roses, together with three stands of cut blooms, and a collection of standards in in-pots, each with from four to half a dozen of the highest quality numerous buds, and the blooms, too, remarkably fine. Those of Marie Hannmann and Mdlle. Marie Rado would have been a credit to any stand of cut Roses.

would have been a credit to any state or country, in which were excellent examples of the beautiful *Cyathidium eburneum* and charming *Dendrobium lasiocolum*, besides *D. chrysotomum* and several others of the same family: *Odontoglossum hystrix*, *Cervantesii*, and *Cervantesii rosea*, and *C. Reichenbii*. Along with this collection was a fine plant of *Rhodesodendron* Countess of Haddington, and *Anarris Achermannii pulcherrima*, well known as one of the finest varieties grown. Mr. Williams, of Holloway, had also a collection containing several *Orchids*, as *Cypripedium villosum*, *Odontoglossum trianthus*, *Lycaete darwensis* and *Skinneri*, *Cologeton cristata*, &c., together with *Palmas*, and some other plants. A splendid group of *Orchids* came from Mr. Denning, gardener to Lord Condesborough, most conspicuous in which were *Dendrobium*, *Phalaenopsis oculatum* (D. Paxtoni of gardens), with a mass of spikes covered with innumerable rich yellow blossoms, and a basket plant of *Dendrobium* *densissimum*, *D. albo-sanguinea*, and *D. Wardianum* were also very fine. In addition to these may be mentioned the pretty *Leptotes bicolor*, and *Phalaenopsis Luddeopaniensis*.

Meessrs. Rollinson & Sons sent a rich collection of *Vandas*, varieties of *V. tricolor*, among which one called *planilabris* was very conspicuous, together with *Cypripediums*, *Dendrobiums*, and other *Orchids*, their new *Epacris*, *Dracaena Gailfoylei*, and several *Palm*s. Mr. Ball contributed a collection in which were several fine *Palm*s, a beautiful *Todea superba*, *Encephalartos gigantens* producing its cone-like inflorescence, *Cypripedium candatum*, *villosum*, and several other *Orchids*. There was also a handsome plant of the variegated *Curculigo recurvata*, and a great variety of other plants.

From Messrs. Standish & Co., of the Royal Nursery, Ascot, came a fine standard of Duke of Edinburgh Rose in a pot, the beautiful double red Azalea Francis Devois, and a novelty in the shape of forced dwarf bouquet-flowered Astrors sown in August, also a basket of Westbourne ponia with magenta-coloured flowers. Messrs. Rolleston & Son, of Westbourne, exhibited the same collection of herbaceous plants noticed last week (page 243), also six plants of *Hoteia japonica*; Mr. Edmonds, of Hayes, Chinese Primulas and Violets; Messrs. Cutbush & Sou, a mixed group, consisting of an Azalea, Cinerarias, forced shrubs, and other autumnal subjects; Messrs. Rolleston, the same collection of Hyacinths as shown at the Regent's Park; Mr. Turner, a collection of Tulips; Pelargoniums; and Mr. W. Paul, Eraniums japonicus flavescens and Waltham Bronze Pelargonium.

Mr. Wimsott, Ashburnham Park Nursery, Chelsea, sent an example of an arrangement for room decoration, showing the advantages of using Palms and fine-foliated plants interspersed with a few flowers. It is due to Mr. Wills, the manager of this nursery, to say that the effect was excellent. The double scented *Thorn*, *Holma japonica*, and graceful Ferns, introduced among *Dieffenbachias* and Palms, gave a charm and variety of colour, form, and height. Messrs. Lane, in addition to the collection of Roses, contributed an excellent mixed collection of *Rhododendrons*, *Azaleas*, and *Dentzas*, in fine bloom.

Prizes were offered in Class 6 for Black-spined Cuenchmers. The first-prize was awarded to a very well-grown brace of *Blue Gnome*, about 21 inches long, from Mr. Thomas Lockie, gardener to F. W. W. Berger, Esq., Court Gardens, Great Malvern. Class 7 was for a brace of White spined. In this Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Hford, was first for Pearson's Long Gnome. In Class 8, Smooth, the first prize went to Telegraph, from Mr. Lockie, the second to Mr. T. Sharpe, gardener to A. Savory, Esq., Potter's Park, Chertsey, for Potter's Park Prolific.

The only other object which remains to be noticed is a box of honey from Mr. Lee, of Windlesham, for which a special certificate was awarded.

FERRIS COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Westcott, gardener to the Duke of Cleveland, Ruby Castle, sent six fine bunches of Lady Downe's Grapes, three of which were produced by Vines grown on the extension system, and three in the ordinary way. The latter were much better coloured than the former. They had fine large berries, of excellent flavour, and altogether the exhibition was so meritorious as to receive a special certificate from the Jury. Mr. Batley, gardener to F. W. Wentworth, Esq., Westbury Hall, Barnsley, sent two very large and fine bunches of Black Alicante Grapes, which remained in the fine condition in which they had been preserved to the present late period of the season. The bunches were well set and stiff, and a special certificate was awarded to them. Mr. Hallett, Cossington, Bridgewater, sent a brace of two seedlings

Cucumbers, one called Hallett's Champion, and the other Hallett's Perfection. The former was much resembled the old Green Turkey, and neither was considered worthy of a certificate. Mr. T. Sharpe, gardener to A. Savory, Esq., Potter's Park, Chertsey, sent a seedling Cucumber, called Potter's Park Prolixie, a long, smooth, pale green variety, which was not considered worthy of a certificate. Mr. Gilbert, gardener to the Marquis of Exeter, Buryleigh, sent baskets of Mushrooms, some of which were grown out of doors, and some in a Mushroom house. The former were splendid, and some of the buttons measuring 4 in. long, 1 in. diam. A special certificate was awarded to them. Mr. Smith, gardener to Earl Gainsborough, Exton Park, Rutlandshire, sent dishes of Mushrooms raised from French spawn, but they did not compare with those grown by Mr. Gilbert.

Mr. Record, of Lillesden, sent four dishes of Apples to be named. Mr. Dixon, gardener to Lady Holland, Holland House, sent a dish of Cluster Golden Pippin; and Mr. Lockie, gardener to F. W. Berger, Esq., Court Gardens, Great Marlow, sent a dish of Reinette du Canada, which had been before the Committee, September 7th, 1859. They were still in good condition. Mr. Smith, of Exton Park, sent two dishes of Duncroft's Seedling Apples, large and handsome, and admirably kept, and a special certificate was awarded. Mr. Smith also sent three Apples to be named.

FLORAL COMMITTEE.—Rev. Joshua Dix in the chair. From Messrs. Veitch came *Dendrobium thysiflorum*, very beautiful, pure white, with a rich orange lip, a great acquisition; likewise *Prinula Centi*, from Abyssinia, for which a similar award was made. This is a singular-looking plant, producing pale yellow flowers in two tiers of corymbs, not beautiful in itself, but likely to be useful for originating new strains. Messrs. Veitch also sent several cross-bred *Hippastrums*, the handsomest of which was *H. pardinum*, which had previously received a certificate.

Mr. Bull had first-class certificates for *Encephalartos mirabilis*, an ornamental species, and for *Thrinax grandis*, a very graceful Palm. Mr. Bull also sent *Artocarpus grandis* and several other plants, among which were a *Mentisia* and a *Vellozia*.

which were a Maiana and a New Guinea form. Mr. Wilson, gardener to W. Marshall, Esq., had a first class certificate for *Odontoglossum triumphans nigrescens*, a very fine variety, and a special certificate for a very fine spike of *Odontoglossum Hallii superbum*. Mr. Wilson likewise exhibited *O. triumphans Marshallii* and *O. triumphans Wilsoni*, also very fine varieties. To Mr. Williams, of Halloway, a first class certificate was awarded for *Angraecum Eliasi*, a very fine species with, for this genus, small flowers set in a double row and swept-acrossed, to all appearance a very desirable acquisition.

Messrs. Cubbush, of Higgall, received a first-class certificate for *Azalea François Deshayes*, of which a much better specimen, shown by Messrs. Standish & Co., has been previously adverted to; likewise *Hypericum*, Duke of Edinburgh, a very showy scarlet-flowered variety. A first-class certificate was granted to Mr. Edmonds, of Hayes, for a very beautiful lilac-rose-coloured variety of *Cyclamen persicum*, called *giganteum*; and a similar award was made to Messrs. Paul and Son for *Rose Mlle. Eugénie Verdier*, a beautiful salmon-rose-coloured flower. Messrs. Paul also exhibited *Comtesse d'Oxford*, much in the novel *Madame Victor Verdier*, but paler in colour.

GENERAL MEETING.—The Bishop of Winchester in the chair. After the usual preliminary business, and the election of nineteen new Fellows, the Rev. Joshua Dix reported the awards of the Floral Committee, and in doing so called attention to the advantages of Chapman's packing case for cut flowers, which were noticed in our columns some time back. G. F. Wilson, Esq., F.R.S., Chairman of the Fruit Committee, having announced the awards of that body, the Rev. M. J. Berkeley directed attention to the most interesting plants exhibited. Among these was a *Vellozia*, from Mr. Bull, which he considered a very interesting plant, and, as *Onidium* acetabulum, from the Society's garden, originally he, as *Onidium* sarcoides. The *Bletia* commutata, from Messrs. Standish & Co. he thought was only *B. hyacinthina*, which is perfectly hairy. It was supposed to be a *Brownesii*, but it had complicate, not innate leaves.

With reference to the *Encecephalartos giganteus* shown by Mr. Boll, Mr. Berkeley said, as it was producing its indorsement it would be curious to know what its fate would be, for if its roots were in good order it would throw out leaves; if not, the flowers would feed on the starch of the rootstock. An *Encecephalartos* (caffer) is known as the Caffee Bread, and Mr. Berkeley recounted his having seen the Bread Fruit (Crystall Palace) on reading a newspaper report of the Caffee Bread (Artocarpus incisa), had been sent to the Caffee Bread, but the fruit of it, he might mention, had been shown from the Tyrol, at the late Hamburg Exhibition.

At the late Hanbury examination, Mr. Berkeley then alluded to the beautiful set of bloom which the Peach tree at Chiswick presented just now, and said it was well worthy of a visit. Passing on, then, to the subject of Mushrooms, he remarked that that of Mushrooms partly from English partly from French spawn, the former were often brown, the latter usually white, but that in beds several distinct varieties of Mushrooms might be remarked, and even other Fungi. He had received spawn from North Carolina and Australia of Mushrooms as much superior to the common as the improved Peas were to the old-fashioned ones; but however carefully collected, however carefully planted, such spawn had

not as yet been found to run in this country. It was, however, very desirable to make further experiments in this direction. Mr. Berkeley likewise added that Mushrooms are subject to a disease which makes them in all probability unwholesome, as it preys on the gills, and is similar to the Hyphomycetes which fills the Boletus of the woods with a golden dust.

The Chairman made a few remarks on the great loss which the Society had sustained in General Grey, who had taken a deep interest in the affairs of the Society and in Horticulture, and expressed his confidence that the meeting would agree with him in the expression of this regret. The proceedings then concluded with the announcement that the next meeting and show would be held on the 20th inst.

### ENTOMOLOGICAL SOCIETY'S MEETING.

The second March meeting of this Society was held on the 21st ult. Mr. H. W. Bates, Vice-President, in the chair. Professor Westwood stated that several specimens of the Locust with the flat prothorax, considered by Fischer to be the true *L. migratoria*, are contained in the English collection at the British Museum, from Yorkshire and Northumberland, although none are contained in the exotic cabinet, which, on the contrary, possesses a specimen of the crested kind from M. Brisson de Barneville, under the name of *L. migratoria*. The Chairman stated that a new part of the "Transactions" was just published, containing several valuable memoirs and plates. Mr. Moore exhibited various specimens of *Dianthella Parvelli* and conspersa, from the coast of Devonshire. Mr. F. Bond exhibited a new British Moth of the genus *Fumea* (*F. betulina*, Zeller), found at Bishop's Wood, Hampstead, the caterpillar of which lives in a notable case, resembling that of *Psyche fusca*.

Mr. Letterson sent for exhibition a singular caterpillar covered with long slender hairs, terminating in flat dilatations like a battle-dore. It is a native of Monte-Video, and is, probably, referable to a Moth of the family Noctuidæ. Mr. Stanton exhibited a British specimen of *F. leinigella*, from Wickham Fen, near Cambridge. Mr. Albert Muller read a note from M. Mayer Dor, on the distinctions between *Argynnis Niobe* and *Adippe*, the caterpillar of the former having a white dorsal line, and the Butterflies having an Alpine range of flight, the latter not appearing above 3500 feet above the sea level. Mr. Butler maintained the specific identity of the two insects, in further support of which Mr. Stanton alluded to the well-known instance of two kinds of caterpillars of the Death's-head Moth. An interesting discussion on the subject of dimorphism in insects took place, and several instances were mentioned in which local influences resulted in the production of seemingly permanent dimorphic races. An extended paper was read by Mr. W. F. Kirby, of Dublin, on the species of Butterflies described by Linnaeus.

### SHRUBS FOR THE SEACOAST.

The coast of South Devon, though mild and sheltered in some corners, is as much exposed as any other part of our shores to the fierce, bitter, easterly winds, and requires a careful selection of hardy shrubs and trees. The Tamarisk stands foremost. It is the most beautiful object in summer; I have one several yards in circumference, and some 20 feet high, which when covered with bloom is an exquisite bush, and if all the violent winds are over before the foliage bursts, it is perfectly uninjured by their violence. Next come, but a long way off, the sweet Spanish Chestnut and Laburnum. They are always stunted, but unless some extraordinary gales arise during the growth of the young shoots, they make a creditable summer appearance. The branching Poplar succeeds admirably, also the Stone Pine. I cannot ascertain its proper name. My Pinus Douglasii, insignis, and Scotch Firs, are all browned, and I believe killed, by the late unprecedented weather. My austriacæ are too small for the wind to have touched, but I am told there is nothing better for the seaside in this county. I must not omit a dense-growing, whitish, small-leaved shrub, used much for hedges, which is very ornamental, and seems quite at home in a briny atmosphere.—Devon, *Darwinist*.

### TREE PICOTEE PRINCE OF ORANGE.

In the very brief notes I made of the Show at Kensington on the 16th ult. I quite forgot to mention the very beautiful stand of this Picotee exhibited by Mr. Perkins, of Leamington. When it was first exhibited last year at the Crystal Palace, doubts were expressed as to whether it was really a perpetual-flowering variety or not. Bets were offered by some very persistent deniers of its being of this character. I have always believed in it, and therefore I was very glad to see so beautiful a stand of it exhibited on the 16th of March. Mr. Perkins has had blooms of it all through the winter, and there can be no doubt of its being a most valuable winter-flowering variety. I may

add that it possesses that which many yellow Picotees have not—an excellent constitution and vigorous habit.—D., *Deal*.

### PLANTS FLOWERING IN MARCH.

March 4. <i>Bulbocodium vernum</i> <i>Andromeda floribunda</i> <i>Ranunculus Ficaria</i> <i>Daphne Mezereum</i> <i>Onopordium verna</i> <i>Aconitum vernalis</i> <i>Veronica</i> <i>Corylus Avellana</i> <i>Scilla bifolia</i> <i>Cydonia japonica</i> <i>Double Daisies</i> <i>Rhododendron dauricum</i> <i>Arum</i>	March 16. <i>Doronicum caucasicum</i> <i>Helleborus ager</i> <i>foetidus</i> <i>Populus tremula</i> <i>Saxifraga oppositifolia</i> " 22. <i>Ulmus montana</i> <i>campestria</i> <i>Viola olerata</i> <i>Tussilago fragrans</i> <i>Ficaria</i> " <i>ranunculoides</i> " <i>pleas</i> <i>Cerastium Biebersteinii</i> <i>Sisyrinchium grandiflorum</i> <i>Helix</i> <i>pruinoides</i> <i>Alnus</i> <i>Viburnum Tinus</i> <i>Hepatica triloba varietalis</i> <i>Sisyrinchium grandiflorum</i> <i>Draba aizoides</i> " 23. <i>Alyssum saxatile</i> <i>Alnus incana</i> <i>Climacanthus præcox</i> <i>Erica carnea</i> <i>Noronia cordifolia</i> <i>Erythronium dens-canina</i> <i>Viola tricolor</i> <i>Primula scutellaria</i> <i>Ribes sanguineum</i> <i>Alnus glutinosa</i> <i>Orchis verus</i> <i>Pulmonaria officinalis</i>
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—M. H., *Acklam Hall, Middlesbrough-on-Tees*.

### ORCHARD-HOUSE TREES.

IN No. 468 of the Journal Mr. Douglas treats on orchard-house trees, and his remarks are, no doubt, very good so far as culture goes, but in my opinion such trees are toys. It is now fifteen years since I first nailed a Peach tree, and I have had the charge of three orchard houses; the third I last year planted with fine young Peach and Nectarine trees, but not in pots—they are not put in the stocks for a misdeed, but are enjoying a good loosey border, and their heads are not tortured like that of a man sent to gaol, and who has his hair cut off. They enjoy a wall and a wire trellis, which appear to me to suit their habits. We too often read in the papers of people pinching their children for clothes, scarcely giving them enough food to keep them alive, and in some cases starving them to death, and it is the same with orchard-house trees; first they are crammed into small pots, and then any attempt at progress is pinched or cut-in with a knife. Not long after there was a fever about pot Vines; now extension. Let us down with such torture and cruelty, and study the nature and habits of the plants we try to cultivate; then we shall be on our way to the highest standard of perfection.

Many a clever gardener has lost his situation through an orchard house, because he was not able to satisfy the expectations of his employer. In my opinion orchard houses have done more harm than good to the progress of horticulture.—T. F.

[In reference to your remarks, and especially the growing of trees in pots, see what is stated at page 239. As a matter of increased trouble there can be no question that trees in pots require more attention than trees planted out in a border. The want of that attention, the old "Can't be fished," or troubled principle, are in most cases the causes of failure. Your illustrations are very amusing, but not quite apposite. We presume that hair-cropping in gaol is neither very pleasant nor very salutary; but there is a medium in all things, and we have long thought that many of our youths who rival the ladies in the length of their locks, would neither like Samson lessen their strength, nor abridge their sense, if by a moderate cutting of their hair they let a little more light reach their brains. It was quite an easy matter to let a fruit tree have too much wood in its head.]

We cannot join with you in saying, "Let us down with such torture and cruelty," because we do not see the cruelty, and for these other reasons—First, the orchard house furnishes—at least to amateurs and the possessors of small places—the means not only of much pleasure, but of securing a great variety of fruit in little space. Secondly, the plan has been very successful on the whole. On many wall trees we have seen such crops of Cherries and Plums as would almost outweigh the soil in which the roots grew, and these fruits of the highest flavour. Thirdly, because the system is based on that for

which you contend, "the study of the nature and habits of the plants we try to cultivate." Were every fruit tree in a pot thrown away to-morrow, we should still look on the introduction of the system as marked by progression and not by retrogression. How long is it since the axiom existed—"Plant a Pear tree that your sons or grandsons may eat the fruit?" To what is it owing that a man may now gather fruit some two or three years after grafting? We have gone into many a little garden and found the under-crops next to useless from the shade of some huge Apple, Pear, or Cherry tree. In the same gardens now we find the forest-like tree removed, good vegetables and low fruit trees grown, with, perhaps, a dozen or a score of little bush or standard fruit trees round the border, bearing a great quantity of fruit, though each tree would occupy little more space than from 24 to 30 inches in diameter. The pot system helped to give a great impetus to all such compact, fertile miniature fruit trees, and chiefly because the principle was clearly unfolded, that if we plant an Oak wood ought to be our chief concern; but if we plant a Peach or a Cherry tree, the fruit ought to be our object. It is a good thing that there are many opinions and many ways of arriving at the same object. We trust that many will find interest and profit in growing their miniature plants in pots or otherwise, and we say this, though fully agreeing that planting the trees out so as to cover a trellis will give far less trouble, and with well-ripened wood there can be little doubt of success.]

#### THOUGHTS UPON READING MR. W. PAUL'S DENUNCIATION OF FLOWER SHOWS.

How is this? We can remember when Mr. Paul was an ardent and constant exhibitor, a founder and friend of exhibitions. How is it that he now denounces exhibitors and exhibitions alike—the former as "horticultural milliners," "artificial dressers," "pin-stickers," &c.; and the latter as being "got up to meet the requirements of a false public taste, to realise the greatest possible display, a gaudy show, heedless of the means by which it may be obtained, or the results by which it may be followed?" How is it that he who writes (see his "Rose Garden," part I., page 40), "The larger the flowers the better, if they be not coarse," should now seek to describe these very Roses as "fat," and stigmatise even the trees which produce them as "gorgeous?" Is it as when the sportsman who has lost his nerve declines against fox-hunting, which he loved in youth, or as when the spinster who has danced but once, has a strong impression that balls are vanity?

"Certain it is," writes Mr. Paul, "that showing does not bring the business to the exhibitor that it used to do." Will Mr. W. Paul, however, believe that the successful collections from Cheshunt, Salisbury, Colchester, Hereford, Pitkdown, Hertford, and elsewhere do not fill the order books of those who have grown them? The public make purchases, and will continue to make purchases, whatever Mr. Paul may advise, from the best samples which they find in the market.

It is all very well to wish patrons of horticulture to visit nurseries instead of attending exhibitions, but the most certain way of gaining this end is to send first-class productions to the shows.

As regards the assertion that "two Dahlias are built up to make one large one," and that "huge trusses of our show Pelargoniums are obtained by gumming," I give it the most positive contradiction. Mr. W. Paul may be an authority, and may have had experience as regards Hymenocallis and certain clever modes of exhibiting them, but I impute no unfair doings, although Mr. Paul hints at dishonourable practices being made use of by all other exhibitors.

In your issue of the 24th of February Mr. Paul published some ungenerous remarks upon horticultural writers and reporters, and designated all who had the misfortune to differ from himself as "little critics," but how thankful we ought to be now that we have a great critic of undoubted taste, and may the public receive great benefit from Mr. Paul's labour in this his new sphere.

It is reported that Mr. Paul does not intend to exhibit again for prizes. I myself have nearly ceased to do so; yet would it not be had taste on my part if I were to turn round like Mr. W. Paul, after having been so many years connected with shows, and say that they were all wrong, accuse the public of bad taste in attending them, and ridicule alike both exhibitors and exhibitors?

I have written the foregoing to show that I entirely dissent

from Mr. Paul's conclusions, lest your readers should think they were acquiesced in by exhibitors generally.—CHARLES TURNER, *Slough*.

#### THE SUNDEW, THE DADDY-LONGLEGS TRAPPER.

In reading some of the past numbers of your Journal, I was struck with an article of July 2nd, 1868, upon "Plants of Prey." I believe it is not generally known that by observation in a fine evening the common "Daddy-longlegs" *Tipula*, may be seen depasturing upon the flies caught in the leaves of the various species of *Drosera*. The fact will aid in explaining the general distribution of compensating powers in nature.—H. J.

#### THE LAMENT OF THE CLEMATIS.

"I did not think matters would ever come to this pass," murmured a Clematis from the dim retirement of a back wall in a crowded conservatory. "Dear me! to think such changes should ever come! There was a time when I was valued, everything done for me that I could desire—when I stood out to the front and could feel the warm sunshine glow upon my leaves, and the soft air fan me all day long. With what gladness I climbed the rafters! how exquisite was life! My master's joy and pride I was. How he loved me and cared for me! And visitors would regard my blooms with such wonder-searching eyes, that I trembled lest in their eagerness they should rob me of my treasures. 'What splendid flowers!' they would exclaim, 'what depth of colour! and what a size! Is it one Clematis or more that so covers half your roof?' And I, like other beauties, proud of the praise, shook out my feathery filaments with gladness. But, alas! a change came; they pushed me far back into a region where there was neither sun nor light left, to care for myself, forsaken quite for newer beauties. I passed long days pining for a few drops of water. In vain I hung out my signals of distress; in vain I stretched up higher and higher, thinking the rain clouds would be merciful. I could not live in the shade, so my strength departed, my beauty fled; my blooms, once in number more than you could count, were not. I was no longer an object of admiration; master, and friend, and visitor alike passed me unheeded, or, if they did note my presence, it was only with scornful pity or cold disdain. 'What a miserable thing it is, to be sure!' I heard one gardener say to another; 'going to the bad and no mistake. I would throw it out.' 'It is starving,' said another, 'pined in that little house. Give it more space and something better to live upon; it is too good to be thrown away without any effort.'"

"Then, all at once, without any notice—a few warning knocks would have been a gain—they dragged me rudely out of the little red house I had lived in for more than a year, so hastily that several of my members were broken and left behind. True, they gave me a larger house, perhaps a better, but then it was more than I needed, larger than I could fill; the food in my deep cellars soured from want of using—my appetite had forsaken me. I tried hard to live and to work, but could not. I was assailed on all sides. I suppose everything existing has its peculiar enemy. Mine found me out in my weak condition, and soon covered my poor half-alive leaves under and over with their fast-increasing broods of hungry scale. How they sucked and drew the sap-life out of me! For long I could not tell what ailed me, nor what had so shadowed over the once-glorious world; it was so dull, and dim, and dark. I could not see sun, or moon, or stars; I lived in a perpetual twilight, a gloomy shade that saddened me. In vain I sighed for a glimpse of the blue sky, thinking it would be a renewal of strength; it was ever clouded over. Through all the dreary sunless summer I endeavoured to make the best of my altered condition and to bloom as of old. One of my flowers did venture out of its soft felt-like enclosure, but it was small, and pale, and soon drooped and fell, covered all over with what should not have been there; and in truth I was not sorry—I felt ashamed to show the unripened cane like brown dead leaves in autumn, strange to look upon in the sultry summer.

"One more chance for your restoration," said the gardener, as, in disgust at my unsightly appearance, he tore me down from the upper heights, never thinking of my poor tendrils which still retained the will and the power to hold, and so were left dangling aloft. Then, unwilling to give me over to the

enemy, with penknife and sharp-pointed sticks, he waged a terrible war of extermination against the parasites, launching bitter and often unjust words against them all the time. Ah! they never visited me in the glad healthy days of growth and bloom. Now I had sunk so low I did not care for them—did not care to exist; better not to be than such a life as mine. Robbed of the glorious sunshine, the beauty-giving light, and the strengthening air we all love so well and need so much, what was there left worth living for? 'There, it is your last chance,' said the man, as he put me back to my old position on the wall, behind Camellias, Azaleas, and a world of other plants I had lived pleasantly with for years. 'A poor chance at best,' I heard a neighbouring florist reply, 'you might as well bring the Heath from the breezy common to bloom in your stove; it can never make anything in that sunless corner. Better to throw it away and make space for something that will not be all day quarrelling with the damp, dark atmosphere. It will never flower beneath the shade of that thick strong Vine.' The mystery was solved. Two thick canes had found their way in from the adjoining viney, had grown and spread, and spread and grown, until they had covered all the roof. No wonder I could not breathe, no wonder I had thrown out long, soft, slender, useless shoots, in a vain endeavour to find sun, or light, or air. I knew it was all over with me. They had turned the conservatory into a viney, changed beauty into usefulness—such beauty as mine, too; had driven away the long-gratifying and ever-refining pleasure of sight for the short-lived one of taste. I shall not strive again; too unequal would the contest be—a slender Clematis against a muscular Black Hamburgh. So I am slowly dying for want of sun, and light, and air, sacrificed, as Flora's charms too often are, to the wishes and requirements of Pomona."—MAUD.

### NEW BOOK.

*Alpine Flowers for English Gardens.* By W. ROBINSON, F.L.S.  
With Illustrations. London: John Murray.

If there was one book more than another wanted in horticulture that book was one on Alpine plants, and if there was one person more than another competent to write it that person is the author of the work before us. It has been too much the fashion of late years to neglect the cultivation of those small but exceedingly beautiful plants popularly known as Alpines. The taste for gaudy glare in our flower gardens has predominated so long that many of the loveliest flowers have been forgotten or neglected, and to many of the present generation of gardeners they are wholly unknown. It is with pleasure, therefore, that we find one who has made a speciality of the study of this class of plants coming forward and reviving, or attempting at least to revive, among us a love and a knowledge of objects so worthy of our attention.

The work before us is a goodly volume of 400 pages, very nicely illustrated with Alpine scenery, rockwork arrangements, and beds as places adapted for the cultivation of Alpine plants. It is divided into two parts. The first, which occupies about one-third of the volume, treats on the Culture of Alpine Flowers, and embraces the Rock Garden, Ruin and Wall Gardens, Alpine Flowers in Borders, the Wild Rock Garden in Woods, the Window Rock Garden, and a most interesting sketch of "A Little Tour in the Alps." The second part is an enumeration of the choicest Alpine plants alphabetically arranged, comprising descriptions and full directions for the culture of each, the positions best suited for it in the gardens, &c., and concludes with capital selections of Alpine plants for different purposes.

This is a most useful book, carefully prepared, well written, and a valuable addition to our gardening literature. The following is an example of the way in which each subject is treated:—

#### PRIMULA SCOTICA.—*Scotch Bird's-eye Primrose.*

"This, one of the most lovely of its family and of the choicest little gems in the British Flora, is a near ally of the Bird's-eye Primrose of the moist and boggy mountain sides of the North of England. Its rich purple flowers, with large yellowish eye, open in the end of April, supported on stems from half an inch to an inch high, growing an inch or two taller as the season advances. It is said by some botanists to be simply a variety of the Bird's-eye Primrose, but the seedlings show no tendency to approach the larger and looser *P. farinosa*, and Mr. Syme, who has carefully observed the living plant both in a wild state and cultivated in his own garden, declares it to be 'perfectly distinct.' The leaves are very powdery on the under side, broadest near the middle, shorter and less indented than those of *P. farinosa*, which are broadest near the end; and the whole plant is about large enough to associate with a dwarf moss or lichen. It is rather difficult to obtain,

unless one has an opportunity of getting it from its native localities in Scotland; but it can be had from several English and Scotch nurserymen who cultivate such subjects. A native of the counties of Sutherland and Caithness, and of the Orkney Isles, growing in damp pastures. The best place to select for its cultivation is on a properly made rockwork in some spot where it would have perfect drainage, and not be injured by strong-growing subjects shading it. The soil should be a friable loam, mixed with sandy peat or a little cocoa-fibre, and made perfectly firm. If placed on the level ground or on a raised border, a few pieces of broken porous rock should be placed firmly in the ground round it, so as to show half their size above the surface, prevent evaporation, and also act as a guard to the very diminutive plant; and the same plan might be followed to some extent on a rock-work. If a coating of dwarf moss is spread over the earth after a time, I should not remove it, believing the tiny plant to enjoy such a carpet, whether grown in pots or the open air. Although so small, it is, when in health, a vigorous Lilliputian, and seeds very freely, the self-sown seedlings having often formed with me good plants on the mossy surface of the cottage or path. I have grown it in the open air in the suburbs of London; but as a rule it is best for all who do not try it in a pure atmosphere to grow it in well-drained pots or pans, using the same kind of soil, and protecting the plants in a cool shallow frame in winter, placing the pots out of doors in summer plunged in coal ashes or sand. In all cases the plant should be abundantly watered in dry weather, whether in spring, summer, or autumn. Easily propagated by seeds, which should be sown soon after they are ripe in shallow pans of sandy peat or fibrous loam mixed with cocoa-fibre, and placed in an open pit or shallow cold frame."

**PRUNING RASPBERRIES.**—At a recent meeting of the Wisconsin Horticultural Society, Mr. McAffee gave the following as his method of pruning Raspberries:—"When the young Raspberry shoots are 8 inches high, pinch out the terminal buds, leaving only three or four shoots to each stool. When the laterals are grown 1 foot, pinch in again, then allow them to grow the rest of the season. Next spring cut to within 1 foot of the last pinching, and stake with small stakes. The pinching and pruning make the stalk woody and lusty, and the plants yield about twice as much as if treated in the common way."

### LADY COWS.

To-day (March 30th), being bright and sunny, I was quite surprised to see the multitudes of these pretty insects on some of the shrubs on my lawn. They literally almost covered some of the bushes. The first plant on which I observed them was a *Thuja aurea*, and, as it was almost covered by them, I went round to see if they were equally numerous on the other trees. I was very much interested to find that there were few to be seen on the green shrubs, whilst all the Golden Yews and Golden Arbor-Vitæ were almost scarlet with them, and a good many were to be seen on a gold-edged Box. Is this not an instance of that instinct which induces a hare to make her seat in a brown tussock? I never remember to have seen so many of these useful insects before, though they were very numerous last season. It is to be hoped the green aphid will have a bad time of it this summer.—J. R. PEARSON, *Chilwell*.

### MAKING CHARCOAL FOR FUEL.

[IN ANSWER TO "SUPREMELY IGNORANT" (a confession of self-knowledge rarely made), we reprint the following.]

My practice is to commence by taking a sufficient quantity of split wood that will easily ignite on the application of fire, and with a sharp instrument cut it into lengths varying from about 3 to 9 inches. I then place it in a dry shed until I have prepared the whole of the wood which is to be burnt into charcoal at one time, and to preserve it from being wet; for the drier it is kept the sooner it will take fire when the whole is piled for burning. Attention to this will save much trouble, and probably partial failure in the operation.

The quantity of dry wood to be prepared will depend upon the size of the heap when ready for being set fire to. A heap that measures about 4 feet in diameter at the base, and from 4½ to 5 feet high in the centre, will require a quantity sufficient to form in the centre of it a circular heap about 18 inches through at the base, and 12 inches high in the centre.

Charcoal is generally made, on a large scale, of the boughs of trees that have been cut down for sale, or of the underwood and prunings of trees that abound occasionally on the estates of landed proprietors. The wood should be as firm as can be obtained, and as free from sap as possible; but if it cannot be had of this kind, take the best at command, and cut it also

into lengths of about 6, 9, 12, and 18 inches; and when it is cut be particular to make the lengths into three loose heaps—*i.e.*, those lengths that measure the least in diameter into the first heap, those of the greatest diameter into the second, and those which range between the least and the greatest diameter into the third. Also, prepare a smooth circular piece of wood from 4 to 5 feet in length, and 6 inches through. Attention to these things at this stage of the process will greatly economise the amount of labour which will afterwards have to be bestowed upon the building of the pile.

The wood being thus prepared, next proceed to select a convenient plot of ground upon which to burn it, and which, I would remark in passing, might be the corner of an adjacent field, the Melon-ground, the compost-yard, or, for want of these, the centre of a spare quarter in the kitchen garden.

The ground being fixed upon, level and make it firm by beating it with a beater or the back of the spade, and then in the morning of a fine day, when the weather looks settled, wheel the wood to it, keeping the heaps, as already, separate from each other when placed round the ground where the principal heap is to be formed; also have brought from the field or common a cartload of sound turf, and place it at a proper distance from the material already on the ground.

Into the centre of the ground which has been made even with a mallet, strike one of the thick pieces of wood, which, I would observe, must have been pointed at one of its ends when the rest of the wood was being prepared. Allow it, when fixed in the ground, to stand about 9 inches above the surface of the soil round it; begin to form the pile by placing a few of the shortest lengths of the dry wood equally round the bottom of it, and then, against these, others with one end resting on the ground, so that the end which is the uppermost will incline towards the centre of the heap. They must be placed as closely to each other as possible in an imbricated style. In this manner proceed until the heap reach to the top of the stake. Afterwards mix with the wood a quantity of shavings which have been got from the carpenter's shop, which will cause the wood to ignite sooner than it would do if they were not used. The form of the heap, when of the dimensions above stated, should be that of a cone, on the point of which must be mounted on end the long, smooth piece of wood which was made ready for the occasion as already stated. Be particular to make it firm by putting the end of three rods into the ground, so as to form the three points of a perfect triangle, and fastening the other ends of them to the top of the wood. Then take about one-fourth of the lengths which form the first heap of wood, and tile-form lay them equally all over the central pile; also, take the whole of the second and third heaps, and use them one after the other in the same way, finishing with a layer of the remaining three-fourths of the first heap.

The reason for arranging the wood in layers in this form is, that that which is of the greatest diameter, and which is near the central layer, is no more than ready for being drawn when the outward one is perfectly burnt into charcoal, and, consequently, the pile is ready for being taken down and the charcoal holed.

The piling of the wood being completed, cover it equally all over with the turf which is close at hand ready to be used; place the grass side downwards, and on the top of it a layer of sifted soil from 1 to 2 inches in depth.

Having done this, take out of the centre of the pile the smooth, perpendicular piece of wood, and deposit some light combustible material, in which a quantity of congrue matches have been mixed, on the top of the dry wood in the centre, by letting it drop down the hole out of which the wood was taken. Set fire to it by casting a few live embers upon it, and when it has caught fire feed it with a small quantity of wood, and then close up the hole with a little turf, so as not to allow the fire to escape. Afterwards take a rod sufficiently long to reach to the centre of the pile, and with it perforate the sides, letting it run to near the centre. By these perforations a ventilation will be created that may be regulated so as to keep the fire equally burning throughout the whole of the pile. As the fire continues to burn, it will require to be fed occasionally with suitable material. This must be done by uncovering the open space in the centre which was left for the purpose, and carefully letting down the fuel with which to feed it, and then covering up the orifice as before.

The fire in its progress will consume certain parts of the turf and soil which serve as an external covering to the pile, and also to keep the fire smouldering, instead of issuing in flames, which is a point in the process worthy of being noticed

by those persons who wish to have good charcoal with little loss of material. Therefore, on the first indication of the fire coming through to the surface, in whatever part of the pile it may be, immediately cover the place with turf and sifted soil, which must be always at command.

The length of time it takes to burn wood into charcoal varies according to the softness or hardness of it. Oak takes the longest, and is generally thought to make the best charcoal, and on that account it is to be preferred to any other kind.

Now, if the pile, during its burning, be properly attended to, the loss of material will be trifling. The refuse or ashes are, I consider, amongst the best articles that enter the kitchen garden for top-dressing the beds of Turnips, Carrots, Parsnips, Dwarf Beans, &c.; and for first early Potatoes, either mixed with any other kind of manure or alone, they are equal, if not superior, to anything I have used.—B. E., near Halifax.

## NOTES AND GLEANINGS.

THE CHANGE IN FRUITS PRODUCED BY A DIFFERENT CLIMATE has been long since noted, but so decided an alteration as that recorded as a result in the experimental garden of the Victoria Horticultural Society is unusual. The report says:—"The recorded observations of those residing in a climate like that of England are far from reliable as a guide to growers in this climate, and numerous illustrations might be given of this. Several of the Pears grown in England, and reported upon as merely 'stewing' Pears, are found here to be melting and delicious dessert varieties; while many of the Apples which are characterised by English authorities as of no special merit are so changed by climate as to be among our most valuable varieties."

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

WHILE the present cold weather continues, little can be done that has not been recommended in former calendars. Trench all spare ground, run the hoe between the rows of all crops that are above ground, and attend to the destruction of snails and slugs. Sow a little *Red Beet*, but not much, as it will very likely run to seed; also, a few Dwarf Kidney Beans in a warm corner; these will require shelter for a short time when coming up. Make the principal sowing of favourite sorts of *Broccoli* to stand the winter. A sowing of the dwarf Hardy Russian made a fortnight hence, often bears frost better than that sown earlier. Sow a little Cape Broccoli and *Cauliflower* in the open ground. The *Celery* sown early in boxes will soon want pricking out. The old plan is very good—viz., some very rotten and mellow dung on a sound bottom. On this the plants, pricked out 3 inches apart, will produce many fibres, and will remove with the trowel in balls with a very trifling amount of cheek. The chief reason why *Celery* bolts is sudden luxuriance succeeded by sudden checks. Sow a little *Hamburgh Parsley* and some *Parslane*. *Rampion* beds may now be sown; a light sandy soil suits this in common with most of the *Campanula* family.

### FRUIT GARDEN.

The disbudding of Peach and Apricot trees must be commenced forthwith, by removing all the foreright wood shoots and a portion of those on the lower side of each shoot; also, as blossom buds are very numerous this year, it will be proper to take off a portion of these where ill placed. Keep a sharp look out for the aphids on the young shoots; these should be syringed with tobacco water as soon as the insect is perceived. After high winds, fresh-planted trees in the open quarters should be finally looked over, and the earth pressed firmly about them. As Peach and Nectarine trees become older and acquire a full complement of wood, according to the space allotted to them, it will be found necessary to disbud with some severity, in order that the trees may be kept in a healthy fruit-bearing condition, and not weakened by being crowded with too much wood; therefore, encourage only the young shoot nearest the base of the fruit-bearing shoot; but as the terminal shoot will be necessary for the proper maturation of the fruit, it must be closely stopped at the last thinning, and any attempt at growth afterwards must be carefully removed without injuring the leaves. As soon as the fruit is gathered, it is best to remove the shoots which have been stopped, down to the young ones, which are greatly strengthened thereby, and it also exposes the young wood more to the influence of the sun at a season when the exposure is most needed for ripening it.

## FLOWER GARDEN.

Those who force Neapolitan Violets should for the next three weeks or a month propagate stock, either by cuttings or runners. Young stock of choice Pansies of last autumn's striking should now be planted out in the flower-garden beds or borders. If the soil is in any way exhausted, a little fresh should be put in the hole. Sow Sweet Peas and Mignonette. The water which is apt to lodge in the cavity formed by the advancing Tulip leaves ought to be scrupulously removed, as at this season it is of the first importance that every part of the plant should be dry when frosts occur. It appears that the best means of preventing injury from hail storms, so prevalent at this season, is to keep the beds covered with small-meshed nets, but these should be sufficiently high to prevent the plants from being drawn. Ranunculuses are now beginning to make their appearance above ground; as they advance it will be a necessary precaution to keep the soil well round the crown of the plant; when this is neglected the bloom is sure to suffer, though if the surface of the bed be composed of sand to the depth of half an inch there will not be much danger. In consequence of the severity of the late spring frosts, it will be advisable to throw mats over the beds, unless they are in a very sheltered situation. Take special care that the frames in which Anemones are kept are well covered during the night; should the expanding blossoms receive a check they become in florists' phraseology set, and they will have great difficulty in expanding. Seedlings will now be blooming in the southern counties.

## GREENHOUSE AND CONSERVATORY.

Propagation by cuttings is one of the most important parts of the gardener's profession. Selection of wood is the first important point. The wood, as a general rule, should be short-jointed, somewhat mature, and, for plants in an active state, possessing leaves perfectly developed. The due care of the leaf is the next great object; this should never be allowed to flag or droop from the moment it is taken from the mother plant: hence the propriety of using striking glasses, which, although enclosing a somewhat vitiated atmosphere, prevent any undue perspiration in the leaf, which circumstance is of more importance than the character of the atmosphere. In making cuttings, the more healthy leaves that can be retained the better, provided they can be carefully preserved, but in order to find room for the multitudes required for modern plantations, it often becomes absolutely necessary to reduce these organs. In doing this, there is no occasion to strip the cutting like a hedge Poplar; every stump of the leaf, and even footstalk, that can be left without crowding the adjoining cutting, contributes to the success of the cutting. Those who desire to have the Camellia in blossom from October until May, which it is quite easy to do, must, of course, force their plants into wood successively. If a given stock were divided into three portions, and one portion subjected to this process in February, a second in March, and a third in April, this object would be thoroughly accomplished, provided the subsequent treatment was what it ought to be. Among the various dressy flowers which should find a place in the greenhouse, a shelf or a portion of the house should be reserved for some of the free-blooming hybrid Roses. Cuttings of these struck last summer, and kept throughout the winter in store pots, if potted in moderately rich soil, and subjected to high cultivation, will make nice bushes for next autumn and spring. They should be forwarded in-doors for a month, and when established in 5-inch pots should receive their final shift at once. All blossom buds should be pinched off throughout the summer, if the plants are intended for winter or early spring bloom. Cuttings of young wood struck now will flower well late in the autumn, if they are duly cultivated. Encourage afternoon and evening warmth, but give air freely all the early part of the day. Take care to fannigate little and often in all plant houses or pits, if the green fly make its appearance.

## STOVE.

Increased heat and moisture may now be given to stove plants in general, but above all, atmospheric moisture of a permanent character. Have shading always at hand to ward off intense sunshine for an hour or two. Use liquid manure constantly to stove plants in general. If not attended to before, it is now time to put in cuttings of the winter-flowering stove plants, such as *Eranthemums*, *Begonias*, *Justicias*, *Gesneras*, *Euphorbias*, &c.

## FORCING PIT.

This department will soon find its occupation gone, so far as the forcing of flowers is concerned, and therefore you must take advantage of the breathing room to give encouragement

to *Clorodendrons* and other free-growing plants, which now require plenty of space. Some of the plants may also be removed from the dung frame to this pit, to make room for *Balsams*, *Cockscombs*, *Amaranthuses*, and such other plants as it may be deemed necessary to grow for the summer and autumn decoration of the greenhouse and conservatory.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

As we expected, the last of March and the first two days of April gave us sunny days, reminding us of the middle of June, or the first days of July. This, the 2nd of the month, however, is the first morning that has not been frosty, if not wet. Seeds of most of the main crops, as Parsnips, Onions, and Carrots, have been committed to the ground. Could we have made sure of such fine weather we would have deferred sowing until the end of the month, but as time was going on, and stiff soil needs all the time that can be given, we began to feel anxious chiefly about the Onions, as our most forward, sown in the autumn, had been cleared out of the ground, as well as a large bed of Leeks, by unwelcome four-footed intruders. Our soil, though frequently turned over, was not so dry and mellow as we should have liked it to have been, and therefore, after treading, raking, drawing drills, &c., we resorted to an old palliative under such circumstances, and covered in the rows with riddled light sandy loam, merely drawing the back of a rake over the whole to make it neat and level, and waiting until fine dry weather had set in, and the seedlings were beginning to peep through the surface of the soil, to pass a light roller over the soil to consolidate it there.

Where the soil is light, easily worked, and quickly dried, all such care in covering seeds would be quite unnecessary, unless the covering contained something in the way of rich concentrated dressing. In all soils rather stiff and retentive of moisture—the best soils after all for holding crops, though not for growing them early—in the largest gardens, as well as the smallest, it will be an advantage to have a heap of dry soil to go to for seed-covering. When, as in our case, the soil was wet enough at sowing time, the dryness of the covering was a great advantage. There was quite enough, and more than enough, of moisture below to cause the seeds to swell and germinate when sufficient heat reached them, and the young shoots would grow strongly and healthily through the drier soil. If severe frosty mornings should set in, the dry soil would be a good protection. It would be some time before showers would freely through, which they rarely do when wet soil is used for covering. In the latter case the water would be retained as if in a sponge, keeping the air from reaching the seeds, and often causing them to decay instead of germinating. Hence the great difference between working such soils when they are wet and when they are dry. We have seen days spent in working ground when wet, although it would have been more economical to have let it alone. Having stiff soils in summer free, open, and easily worked, or hanging kindly together like huge blocks, will depend very much on the treatment we give. In seed-covering, in most gardens plenty of material will generally be found in the refuse beneath potting benches. In the smallest gardens a few barrowloads of fine, dry, light soil will often come in most useful for seed-covering, and with such help seed-sowing may be practised almost in all weathers, wet as well as dry. No seeds will ever be shunt out from atmospheric influence when such a covering is used.

To avoid covering seeds with wet soil some, in the case of small seeds, merely sow them on as fine a surface as they can, and slightly pat them into the ground, giving no covering. Some seeds do very well thus treated, especially those which germinate very quickly; others that lie some time before swelling and germinating, succeed tolerably if the weather is dull and heavy, if not moist. But failures frequently take place when such seeds, partly exposed, are subjected to the influence of bright sunshine. Moisture, heat, and access to air, are the great essentials to healthy germination, but most seeds germinate best in at least comparative darkness. The slight covering, proportioned to the size of the seed, keeps it in more equable condition as respects moisture, temperature, &c. Exposure to bright sunshine does much, in our opinion, to weaken or destroy the vital powers of a seed. We once put a lot of seeds—Peas, Beans, Cabbage, Turnips, Melons, Cucumbers, &c., thinly on the shelf of a hothouse, and allowed them to remain

there exposed to a bright sun for eight days; but a great many refused to vegetate, and those that did so grew very weakly.

We used to sow our *Onions* in rows in 4-foot beds, with narrow alleys between, in which Lettuces were grown thinly. These spaces gave a good opportunity for cleaning the *Onions* without tramping between them, and on the whole we do not think we could improve on the system; but partly to save time and labour at first, we have lately sown in rows in a piece, generally 1 foot apart from row to row. At this distance the *Onions* may be left a little more thickly in the row, so that the bulbs do not touch. This plan renders several hoeings necessary, but they are done by a careful man, using a small sharp Dutch hoe, cutting up the small weeds and hoeing very shallow, so that whilst just the surface is loose the ground beneath shall be pretty well compressed to suit the *Onion*. In cleaning, thinning, &c., the bed system gives, however, a great advantage, as all may be accomplished without setting a foot amongst the *Onions*, whilst by sowing a piece in rows there must in thinning be careful walking betwixt the rows.

Where there are early beds of Horn Carrots, the beginning of April is soon enough to sow the main crops of Carrots. In order to have them, not perhaps so large, as sweet and crisp, it is a good plan to have smaller successive sowings, say in the end of April, the middle of May, and the middle of June. These frequent sowings also furnish successions of thinnings of sweet young Carrots for soups, &c. Beet and *Salsify* are generally early enough when sown from the middle to the end of April. Beet, for many years, we have chiefly transplanted when the leaves were of some size. No dusting or netting would keep the birds from it. Before the seed leaves were an inch above the ground, the leaves and what was beneath them would be cut off. What surprises us is that we have gone into other gardens with more wood and shrubs near than here, and not a Beet seedling or a fruit bud on trees would be touched. The birds must either be kept down, or there must be something more tempting for them to go to. What can be the more desirable bait? In like manner were we to sow a quantity of Love-lies-bleeding and Prince's Feather, we should never have a plant, though the seedlings came up as thickly as Mustard and Cress, unless we resorted to stringing and netting. When the plants attained from 1 to 2 inches in height they seemed to have no charms for the birds; hence we sowed under a hand-light and transplanted. It would be interesting to know if in other places the birds are as partial to young seedlings with high-coloured foliage. Last year we happened inadvertently to leave outside of a frame a box of seedlings, about half an inch above the ground, of *Amaranthus melancholicus* ruber, and when we went back, in half an hour, there was not a single plant left; whilst the piping of chaffinches and the defiant chirruping of sparrows left us in doubt as to whom we were most indebted for taking such quick advantage of our carelessness.

There is something to us incomprehensible in the tastes and likings of animals, and we should be vastly the gainers if we knew more about them, so as to turn many little matters to our benefit. For instance, it seemed next to impossible to keep deer out of one small place here. Raise the fence as we would, over they would go, until it was something like 7 feet high. In another place, with material inside quite as tempting, a common hurdle, say 3½ feet to 4 feet in height, has kept them out, though they could go over it as easily as a cat could mount on a low stool.

We have mostly relied on the London Market *Cauliflower*, a good kind, though not so compact as the *Cauliflowers* alluded to last year as grown by Mr. Hill, Mr. Beales, and others in Hertfordshire. Sometimes our hand-light *Cauliflowers* have suffered much by mice and rats, and we have had great trouble to prevent such destruction being felt. This year we do not think a plant has been touched in the hand-lights. In an old frame we pricked out a lot of plants, in the autumn, of our old sort, also a lot of plants from seed kindly given us by Mr. Beales. Of the older kind, the same as in the hand-lights, with all our care in trapping, &c., hardly a good plant is left. Most have had their hearts nibbled out, some are cut over close to the ground, more for mischief than anything else, but not one of Mr. Beales's kind is touched, though placed in exactly similar circumstances. Now, could we know the reason of such preferences, we might be able to get on better. Long ago, when our *Onion* crop suffered from the worm and maggot, we could only get a good crop by sowing some Lettuces and Carrots along with them. If the grass mice would always pass this kind of *Cauliflower*, we should not mind giving them

a few plants of another sort to exercise their nibbling properties, but it is just possible that next season they may prefer it to all others.

In the fine days, as the ground had previously been well turned, ridged, and re-ridged, we planted a good many *Potatoes*, and, as our space is very limited, chiefly the early and small-topped kinds. The produce of the *Prolific Ashleaf* last season was wonderful, the ground being scarcely extended enough to allow the tubers to lie when taken up. We expect them to be as fine this season, as the ground was in such excellent order that it was a pleasure to work it. The *Potatoes* had been kept cool, and in such cold soil it would have been no advantage to plant them earlier. A few tubers that had sprouted nearly 2 inches were placed at the bottom of walls, to come in to succeed those ripe and growing under protection. In many not a quarter of an inch, a different thing from planting after the first shoots have been broken off. In the early *Potatoes* in frames, we have seen as yet no signs of the disease.

As a proof of the coldness of the soil hitherto, we may mention that to-day (April 2nd) we have examined seeds of Peas and Beans, some sown more than a month, and find the radicle rootlet freely lengthening; but it will yet be some time, unless the heat continue, before the cotyledons or seed leaves appear. Hardly a seed remains of what was committed to the ground in the common. The mice and other vermin, notwithstanding traps, &c., have used them as their property. As yet, of those just referred to as germinating, not one has been touched, not even a hole made, but these were damped and just coloured with red rad. We have sown later kinds of Peas and Beans to follow the earlier ones, but all have been leaved. Radish, Spinach, and Lettuce seed has also been coloured; we have found nothing else so efficient a protection against mice, birds, and rats, before the seedlings appear above ground. Last year some rows were turned up by pheasants, but the Peas were untouched. This season, as yet, nothing has made an attempt at them. What a difference there must be to them in the red-coloured seeds and the reddish seed leaves of Beet, Prince's Feather, &c.

As showing the constant care required in a garden, and especially of what is under glass, we lately mentioned about putting some Cucumber plants in a hot-water narrow pit, and plunging some plants in rather small pots in order to fruit them early, and then to make way for the others. These have answered well, producing good though not large fruit, but still Cucumbers for use. In the cold, dull, leaden-sky days little water was given or needed. On the first sunny morning, on examining the soil with our fingers, we intimated our wish that so much heated water should be given the first thing after breakfast—that is, before nine o'clock, and that the plants should be watched, and if they showed the least signs of distress from the sun they should be shaded. We could not see the plants until between 10 and 11 A.M., and many of the leaves were flagging very much. No water had been given as ordered, no shading thought about, but an abundant supply of air put on. The air was reduced, shading given, water at 80° afforded the leaves, and the floor and walls syringed; in less than an hour the plants held their own again, and by one o'clock did without shading. With such dryness in the soil, exposure to such a sun, especially after dull weather, and a large admission of dry cold air, half an hour more would have rendered these promising plants fit only for the rubbish heap. The plants were so robust that, provided the watering had been given, and a fair amount of air, the sun, though powerful, would scarcely have affected the foliage. The plants have since received a little shade for a couple of hours in the middle of the day, but that, too, would scarcely have been needed but for the above neglect. The great evil of shading is, that if a man put it on, it is very difficult to get it taken off in time. It should never remain a minute longer than is absolutely necessary. We mention this little fact to show that it is not so much great intelligence and great talent, as the unwearied attention to little things, that will secure success. A man might be able to speak and write well on all the "clogies" and yet that would do nothing to save his Cucumbers in a hot day from the consequences of neglecting to water them when that was required. Such casualties as the above are apt to be followed by insects.

We must pass over other matters, as our work was chiefly a continuation of that referred to in previous weeks' notices, but the change in the weather was so great—from dullness to bright sunshine—that we sprinkled the roofs of several of our



that of the leaves. It is well, after the bulbs are taken from the plunging material, to keep them covered with an inverted flower-pot until the spike is clear of the bulb, when it cannot be kept too near the glass. We advise you to invert over them flower pots of a size that will fit immediately within the rims of the others, and to keep them on until the spikes be clear of the bulb, then remove the pots, and by exposure to light and air the flowers and leaves will soon assume their proper colours.

**PEARLORNIUM RUBS NOT OPENING** (*A. Z. M.*).—We think the cause of the flowers not expanding is burning the paraffin lamp in the frame. The remedy is to have a funnel, which would take the fumes into the outer air.

**RESTRECTION PLANT** (*Goulds*).—*Selaginella* (*Lycopodium*) *lepidophylla* is a small-growing stove Moss, and, so far as we are aware, it has none of the characteristics of the *Resurrection* plant, the *Rose of Jericho* (*Anastatica hieracifolia*). The *Selaginella* requires a temperature of from 60° to 65° at night, and from 70 to 85 by day. A compost of rather rough spongy peat, and a free admixture of pieces of grit, or sandstone, and silver sand will grow it well. It should have a position rather near the glass, and needs shade from sun from March to October, and a moist atmosphere, with constant and regular moisture at the root. The pot ought to have good drainage.

**ANTS IN A PINERY** (*Idem*).—We think you intended pinetum when you wrote pinery. You may drive them away by sprinkling guano over their nests, or give them a good drenching with ammoniacal liquor from the gas works; and another good remedy is to pour over the nests a solution of 2 ozs. of Clarke's compound in a gallon of water, and it will destroy all its touchers.

**FENCERS ON LAWN** (*J. Loebe*).—The fungus spawm, or mycelium, may probably be destroyed by direct contact with salt from the glass, and then being exposed too much or too suddenly to light and air, with a deficiency of water at the time the bulbs are forming. Sometimes it arises from the plants being kept too close for a time, and a sudden check being subsequently given by exposure to cold air. From the growth, we should say your plants are weak and require re-pegging.

**COTTONY BLIGHT ON APPLE TREES** (*P. C. Herts*).—It is the American blight (*Aphis laevis*). The gummy swellings on the shoots are not the places where they young are placed, but the result of the formation of an increase of bark over the wounds made by the insects. They are now about the roots; try if pouring gas ammoniacal liquor frequently around the stems of the trees will prevent their ascending. Brush with paraffin oil every cottony spot that may appear on the branches.

**COCA-NUT FIBRE REFUSE** (*R. S. S.*).—The dust is the only part to be mixed with the soil for the culture of Ferns and other plants. This may be done by adding the refuse to the soil. The fibres do for putting over the drainage of pots, and for m'ching.

**NAMES OF PLANTS** (*D. S. L.*).—1, *Acacia dealbata*; 2, *A. linearis*; 3, *Tremandra verticillata*; 4, Specimen very much crushed, apparently *Daphne Mezereum*. (*A. B. C.*).—*Gonista Spachiana*. (*Marten Cott*).—We do not recognise your shrub in its present condition. Perhaps a spray in full leaf might assist us. Send under your present signature.

## POLTRY, BEE, AND PIGEON CHRONICLE.

### FEATHER-EATING FOWLS.

I SEE in your Journal that some one suggests "a bitter ointment," to cure fowls of feather-eating, but he does not say what it is to be. Could you give us a receipt in your "Letter Box," or otherwise, for something which would not hurt the fowls, and at the same time cure them of this most tiresome and, I may say, disgusting propensity, for the poor hare bodies are not a pleasant sight? If the habit continue, instead of being able to show my fowls to my lady friends as a sight worth seeing, no one will care to look at them, but all will rather turn away from them. I read much about it in your Journal last year, but I was then able to congratulate myself on my fowls being nearly free from it; but to my dismay now, several of my hens are quite bare behind, and a beautiful Partridge Cochin cock, weighing 12 lbs., which I was most anxious to exhibit at the first opportunity, is in the same plight. I also found a Crève-Cœur hen submitting quite quietly while a Buff Cochin hen picked the feathers from her face. I have kept fowls for several years, but never was troubled with feather-eating before. I cannot help thinking that some bitter stuff rubbed on would cure it, only, of course, it would have to be something that would do the fowls no harm. If you could suggest anything, or induce some one else to tell us, it would be a great boon.—F. T. H.

I WAS much struck by the note on this subject in your number of March 24th, contributed by Mr. H. Seymour Fraser. His careful observations, extending over a considerable period,

appear to establish the fact, that "fowls eat feathers as a substitute for some sort of matter (I will not with him say 'medicine'), which is obtainable in a farmyard," or by scratching in moist earth. Now what are the substances so found, of which feathers are the correlative? Clearly nitrogenous matters—that is, substances of animal origin. It is, therefore, a want of animal food which is the source of the evil. It may be that the morbid craving is accompanied by disease of the ovary. This is, doubtless, an effect, and not the cause; for, indeed, how can the ovary be in a healthy state and perform its natural function, that of secreting and furnishing to the egg a large mass of albuminous fluids, if a due supply of the azotic element be withheld from the system? If this supposition be correct, it would seem to follow as a natural consequence, that the breeds of fowl which are the best layers should be the most prone to feather-eating when kept in a confined space. Has this been observed?

It may be, also, that a special food is required, and that solid flesh, such as is often given to fowls, may not be a satisfactory equivalent. The French breeders do not trust to this mode of feeding their birds. A very common addition to all well-kept *basse-cours*, is a "*verminière*," or insect-breeding bed. In some warm, sheltered, but shady spot, is put a layer of stable litter, often of considerable dimensions. Upon this are poured all kinds of animal matter. If the refuse of a butcher's yard is obtainable, so much the better; the blood, entrails, and their contents, being the best materials for the purpose. In a few days swarms of insects feed upon the garbage, and deposit in it their eggs innumerable. It is then covered with a layer of dry earth, and upon this is laid a fresh bed of litter and animal refuse, and so on until a bed some feet in thickness has been formed, and the whole has become a moving mass of animal life. A portion of this is now taken daily from one end and served out to the fowls, who thus have supplied to them in their confined space what they naturally find when roaming and scratching over a considerable area—viz., the eggs and larvae of various insects. This is beyond doubt the true food of all the scratching birds, and of which they cannot be deprived consistently with health.

It is probable that access to a large dunghill receiving daily accretions from the stable is the next best substitute. This is a *verminière* to some extent, but possibly owes its chief value to the fact that the particles of partly digested matter saturated with animal fluid found therein, have considerable analogy with the juicy morsels for which the poor birds so diligently and laboriously search, notwithstanding that they may have just received a sufficient supply of vegetable food.—CHERICUS.

I AGREE with your correspondent "W." that he will be likely to find the use of mangold wurtzel in his pens a preventive, in some measure at least, of the feather-eating propensity. I never possessed a feather-eating Houdan, and, indeed, should be surprised to find one exhibiting this propensity, unless sent to me with it. My birds, with a good run, an unlimited supply of green food, with mangold wurtzel always at command, show no symptoms of this disease. I know of no fowls showing so much preference for mangold wurtzel as the Houdans. They will hollow out the root, leaving a sort of shell only. Their eating each other's feathers is a morbid appetite, caused, I believe, entirely by the lack of the simple requirements of fowls—viz., the dry dust bath, daily-cleaned houses, and clean fresh water, with an abundant supply of green food. It is also necessary that they should be enabled to have what is termed "their scratch," in loose earth, gravel, and old mortar.

Fowls in confinement are mostly overfed, and become fat and lazy. I like mine as much as possible to work for their livelihood. I have lately given some gleaned corn in the ear, purchased of cottagers, and the exercise it affords them in finding their food I consider very beneficial to their health.

I am no advocate for the use of "prepared" foods or too high feeding. Of the two evils I would rather under than overfeed. Let poultry in confinement be allowed to indulge as nearly as possible in their natural feeding and habits, and I believe the feather-eating propensity will not be so frequently heard of.—W. MASSEY.

### TRIMMING FOWLS.

SOMETHING ought to be done to effectually stop such fraudulent practices, or all honest exhibitors will refrain from exhibiting, in consequence of which shows will greatly suffer. Allow

me to suggest that committees insert in their schedules, "that if any fowl be found to have been tampered with, it shall be sold by auction, and the proceeds of the sale go to the benefit of the society; and, should the owner have other pens, that they all be disqualified."—A LOVER OF FAIR PLAY.

## THE PRIZES OFFERED AT THE LAUNCESTON AND BARNSTAPLE SHOWS.

PERMIT me to make a few remarks respecting the prize schedules of two rising shows—viz., Launceston and Barnstaple, which are shortly to take place, and perhaps if the Honorary Secretaries and Committees would reconsider the matter, as in the case of a suggestion which was carried out at Torquay, something might be done to apportion the prizes, or arrange one or two classes, in a somewhat different manner.

To take Launceston first, there are eighteen classes for fowls alone, and one class is supposed to be sufficient for Cochins, whereas a separate class is given to White Dorkings, four classes to Hamburgs, and one to Barn-door fowls. This appears to me a great mistake. Again, there is no class for fowls of "Any variety," nor for single cocks or hens. Now, as the prizes are of about the same value as those offered at Plymouth, or say a little less, and Plymouth may fairly be considered a greater show than Launceston can pretend to be, I will show that by comparison the entries for the above classes will not warrant their being established. At Plymouth, Dorkings had one class with only thirteen entries, including, if I mistake not, but one or two pens of White at most. Cochins had two classes with seventeen entries, including first-rate Buff and Partridge, and very fair White. The "Any variety" class brought twelve fine pens, and single cocks seventeen pens. Each of these classes received but £1 15s. in prizes, and yet they filled well. On the other hand, Barn-door fowls brought six pens only, and these were so inferior that the first and third prizes were withheld; and Hamburgs (two classes) brought twenty-five entries, which would never warrant four classes in any of our Devon and Cornwall shows. In fact, at Torquay Hamburgs were confined to two classes, and although White Dorkings were coupled with Silver, they only brought five entries, two only of which, I believe, were White.

Barnstaple issues even a more strange schedule: there are twenty classes, seventeen of which have only two prizes—£1 and 10s. The "Any variety" class has four prizes—20s., 15s., 10s., and 5s.; and Bantams two classes—each 20s., 15s., and 10s. This arrangement is, to say the least, novel. Bantams are more in request, perhaps, in North Devon. Here, too, Cochins have one class only, Brahmas the same, and Dorkings are restricted to Coloured; whereas Hamburgs, again, have four; Malay or Indian Game; Minorcas; and Andalusian, Blue or Blue Pill; each a separate class. Is the poultry fancy declining into a mere demand for fancy fowls or birds of feather, or why are those fine breeds Cochins, Brahmas, and Dorkings so discouraged by limitation? If the funds admit, by all means have every variety classed; if not, I hope the above breeds will not be curtailed to make room for classes which will be a sham, and not pay for half the prizes. I may observe that neither at Torquay nor Taunton have Malays, Minorcas, or Andalusians classes to themselves. In fact, at Torquay the whole of these breeds did not muster ten pens.

I quite agree with your correspondent "CRÈVE-CŒUR," and hope in future that labels with an eye at each end will be used; the convenience I can testify would be very great.—JAMES LONG.

## CLASSIFICATION OF BELGIAN CANARIES.

IN reply to Mr. Holmes's notes of 17th March, I beg to say that my notice of the Crystal Palace Canary Show was not intended as a criticism on the schedule, but as a review of the Show, and therefore I cannot be supposed to have "omitted a very important case" in not pointing out defects, real or fancied, in the schedule.

The subject of correct classification is one to which I have more than once called the attention of the "fancy" in the pages of this Journal. It seems to me to be but very imperfectly understood, and the sooner some intelligent conclusion on the matter be arrived at the better. I shall not go into the subject now, but I purpose doing so before the next show season commences.

Meanwhile I am glad Mr. Holmes has raised the question of the impropriety, if I may so express it, of exhibiting Ticked

and Evenly-marked Belgians in the same class. But before I give my opinion on the matter I will just say in reply to his general request—"As Chairman of the Ornithological Society at Nottingham I have been requested by the Belgian fancy there, and at Sutton, and other places in the district, to draw the attention of the managers of All-England shows in future to this subject, so that these birds may be shown in distinct classes by themselves, instead of being classed together, as they have been at the Sunderland and Crystal Palace Shows"—that for two years in succession we issued the most complete schedule ever seen in the Canary world, in which we offered three prizes in each class for:—1, Clear Yellow Belgian; 2, Clear Buff Belgian; 3, Ticked and Unevenly-marked Yellow Belgian; 4, Ticked and Unevenly-marked Buff Belgian; 5, Evenly-marked Yellow Belgian; 6, Evenly-marked Buff Belgian; and that on neither occasion had we a single entry from Nottingham, or Sutton, or any other place in the district. The Belgian fancy "at Nottingham, and Sutton, and other places in the district" should have put Mr. Holmes in possession of these facts before stating "that a greater number of these birds would be shown" upon a correct classification; and Mr. Holmes himself should have studied our schedules before venturing on an incorrect statement. Ticked are not classed with Variegated, nor Variegated with Ticked, at Sunderland.

My own opinion as to the best classification of Belgians is this. I contend that they are essentially position birds, and that colour is about the point of least value; certainly, when placed in the scale with (what shall I call them?) structural points, it is valueless. Moreover, Clear Belgians are more apt to throw very slightly ticked birds than perhaps any other clear variety; and since such tick or almost indistinct mark is no appreciable detriment to an excellent position bird, I would class the Clear and the *bona fide* Ticked together as being in all Belgian respects one and the same bird. Not so the Marked classes—the marking has been obtained, as the crest has in the Norwich, by importation from some other variety; and as in the Norwich crest is obtained at the expense of the most valuable point—colour, so in the Belgian, marking is obtained at the expense of the distinguishing characteristics of the class, its extraordinary physical conformation. Hence, not forgetting that I am dealing with Belgians, I would put all the rest otherwise marked than ticked in one class; and in judging them I would not allow absolute exactness of marking to set aside true Belgian characteristics, any more than I would allow absolute exactness of marking to counterbalance true Norwich properties. Beautiful marking and position points would have to be carefully weighed together; but it would by no means follow that a bird splendidly marked on the wings, with a perfectly oval cap, or with most unimpeachable spectacle eyes, but deficient in Belgian points, would beat one irregularly blotched but "all there" when called upon.

I base this theory upon the assumption that the Clear and the Ticked are in all essential points one and the same thing—high-bred Belgians, and that the Variegated birds are not so pure in breed, or do not show such Belgian development; and it is manifestly a defective arrangement to exhibit in the same class birds which must be judged for Belgian properties only, and those which have Belgian properties and markings combined.

I pass Mr. Holmes's remarks on the annoyance experienced from not receiving catalogues in proper time, particularly from Sunderland and the Crystal Palace, because he has only exhibited once with us, and cannot know much of our arrangements; but I can assure him that his and one other catalogue which went astray were posted on the opening day. But a catalogue of a Canary show is almost as great a temptation to a dishonest postman or post-office clerk as a letter which feels very much as if it had a half-sovereign inside. Next year I hope to see Mr. Holmes and all the fancy from Nottingham, and Sutton, and other places in the district, at Sunderland. We will show them a model schedule and a model show.—W. A. BLAKESTON.

## THE ENGLISH CARRIER PIGEON.

WE have much satisfaction in presenting our readers who are fond of fancy Pigeons (an increasing number we know them to be), with a portrait of a high-bred English Carrier, drawn on purpose for this Journal by that veteran fancier and skilled draughtsman Mr. Dean Wolstenholme. We have further to state that the standard points given are the result of the combined judgments of Messrs. Brent, Hewitt, and Ord, the

last two of whom have each perused the whole. Mr. Hewitt's skilled eye sees more shows than any other judge, while Mr. Ord takes many prizes, and has at the present time perhaps the most valuable stock of Carriers in the world.

We gave two years ago an article on the Carrier (*vide* vol. xiv., page 265). Suffice it for us now to say that no birds ever deserved more truly to take prizes than some of those Carriers exhibited during the last few years. There has been a gain in size and strength; both were lacking a few years since, when the birds shown were too small and pretty; now it is not so. Whatever doubt there may be as to which variety of fowls should head the prize catalogue, and committees appear to take different views, yet no doubt exists in any Pigeon-fancier's mind that the kingly Carrier must always be placed first. Apart from the different points, there is the Carrier look which marks the first-class bird. He looks not a creature of feathers,

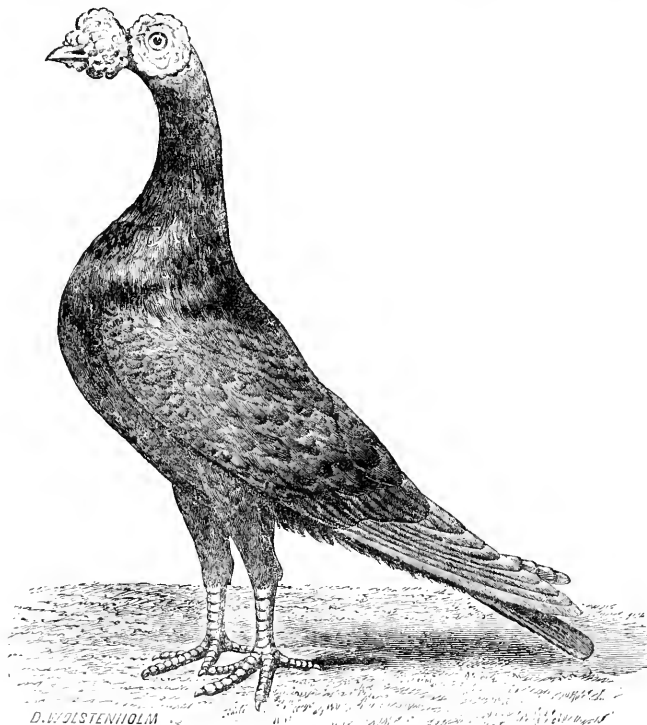
but like a piece of black marble. We will now give the points in their order.

1. **WATTLE.**—Broad across the base of the beak, tilting and tapering from the head towards the point of the bill. It should not press on the cere of the eye, as with age it brings coarseness. The wattle and cere should be of distinct formation.

2. **THE EYE.**—Iris bright orange red; cere, or eye wattle, a complete circle round the eye, broad, and equal in width.

3. **HEAD.**—Long, narrow, flat at the top; the narrower the space occupied by feathers along the top of the head between the eyes the better. In a very superior specimen it will be less than half an inch wide.

4. **BEAK.**—Long, straight, thick, fitting closely throughout its length when closed; it is then called "a box bill." If the upper mandible arches, the failing becomes even more and more developed as age increases, so much so, that not unfre-



quently the upper bill curves over, and the Pigeon becomes what is generally known as "Parrot-beaked." This defect is by some fanciers thought to be brought on by the birds being fed in troughs, by which no free action of the bill in picking up its food is called forth. Mr. Ord, however, doubts this, and believes it to be hereditary.

5. **FORM.**—Neck long, thin, and very slightly curved. Shoulders wide. Wings strong, and pinions long. Back rather hollow. Legs large and stout. Attitude, erect and graceful.

6. **COLOUR.**—If black, the feathers should be jet colour, as a slaty tinge is a great fault; and in Duns, a clear colour is most important, as the feathers should not be at all freckled with lighter colours at the edges, or chequered in the least. Mr. Ord believes that the freckling in Duns is caused by exposure to the sun and weather. His prize birds are kept constantly in the locker, and have not a pale feather; but others, which are allowed to fly about out of doors, are chequered with paler feathers.

To this excellent summary of the points, clear and full, yet not tedious, little more needs be added. But as a guide for size, we may observe that good judges consider that a cock bird should measure 16 inches from the tip of the beak to the end of the tail, and a hen half an inch less.

In conclusion, we trust that the engraving and points given will draw the attention of more fanciers of Pigeons to the noble Carrier, for while homing birds and high-flying Tumblers have their interest and value, we hope that never in England will the high-fancy birds be neglected. Foreigners can compete with us in Antwerps, but not in Carriers, Pouters, and Almond Tumblers.

#### DUMMY FRAMES.

I ASSUME "our Journal" means the only apianian paper; I therefore beg, as one who has been absent for some years

from "bee news" in the English journals, to be informed as to the various names under which the old "bar-and-frame" hive, invented, used, and patented some thirty years ago, has been now introduced in England, France, Germany, and America, as reference is made to a name well known in the bee world—viz., Mr. Woodbury's. In what modification, then, does this hive differ from the original? Is it in length, or breadth, or parts of an inch, or thickness of wood? Your correspondent "BEE-HIVE," asks for an opinion as to "the practicality and utility" of "dummy frames." I venture to add, None, but simply they would multiply the lumber and apparatus of a bee house, and go back to that false system where some imaginary improvement is supposed to arise by the introduction of a frame, a glass slide, or a thermometer; for it strikes me bee-masters have not yet given up the charmas of novelty, and anything that promises a large harvest of honey, or some peculiar mode of removing bees, either from above or below, the back or the front, or the right or left of a hive. I believe, as the humane system of saving the short lives of the worker bees has been taught through the writings of the Rev. W. Cotton (see "My Bee Book"), so we must discontinue these vain efforts of attributing to a "system" of super, or nadir, or collateral, any success in bee culture. I have exhibited honey made in a hat in a favorable locality and good season. But are we guided by the requirements of the bees themselves? Do we study their instincts, or natural habitats? The quotation from Dr. Bevan's "Honey Bee," I venture to assert is a mistaken passage, and the note also confirms my impression. Dr. Bevan is perfectly right, that during cold perishing weather the bees remain clustering around the comb, and only obtain food through the internal passages which exist, or should be formed, for the purpose before winter; but when the numbers of the bees are reduced by death in the hive they can no longer generate the required warmth, then they drop and perish, but it requires damp, starvation, and cold to effect this. Doubtless the "dummy frames" are suggested because they might give warmth, but this is a fallacy. Bees in their natural habitats—in hollow trees, rocks, &c., do not require this, so long as they are free from draughts and damp above. This is the essential of a well-constructed hive, and it is found alone in the hive-within-a-hive, or bar frames with a box live, for the combs upon each separate frame are complete, and can be examined or removed when and how the bee-master pleases. The bees always cluster on the outer edges of the combs, leaving the two outer combs to act as the dummy combs, and the space also serves as the exercise ground when milder weather prevails, and they are not tempted out of the hive. But can anyone state the number of bees that are bred in a comb 9 inches by 12 deep? Can anyone state how the bee grub is fed daily, and are the ages of workers and queens clearly ascertained? I look, therefore, for an answer in "our Journal."—W. A. X.

[There is no doubt whatever that the rudiments of the modern frame hive are to be found in the curious and ingenious contrivance patented so many years ago by Major Munn, under the name of the "bar-and-frame-hive." The actual difference between the two can, however, be much more readily distinguished by comparing both side by side than by any written description. The great advantage of frame hives in giving to the bee-master the most perfect control over his bees is unquestionable, but beyond this we cannot go, and are disposed to regard the vaunted superiority in other respects of what has been fancifully called "the hive-within-a-hive" as so much tall talk best suited to the vendors of such hives, who may naturally be deemed desirous of praising their own wares.]

### OUR LETTER BOX.

**YELLOW DUCKING BANTAMS** (C. Drake).—We cannot aid you. If you refer to the lists of prizetakers at the various large shows you will see who are keepers of the variety.

**LIGHT BRAHMAS** (J. L.).—Mr. Pares; the others, Mr. H. Ebdon.

**BRAHMA PULLET LEG-WEAR** (S. T. G.).—If the pullet has shown no symptoms of piddiness or other affection of the head, we do not think her resting on her hocks arises from paralysis. Give her bread—brown bread is best—soaked in ale daily, lettuce leaves, and access to dry rubbish.

**HARDY TABLE FOWLS**—POULTRY-KEEPING EXTENSIVELY (G. W. D.).—Pure Brahmans are harder and easier to rear than any cross-bred birds. We know no bird so hardy, and few so useful. We believe the reason why the Company could not rear their losses were enormous. Thousands were spent there without yielding a profit. The same will happen to you if you follow the same system. There is no hope of success from keeping a multitude of fowls confined near together.

**WHAT IS A COCKEREL?** (T. O. J.).—There are many names, as stag, and cockerel, and so on. A cockerel is a bird of the year. This year a bird hatched in January is still a cockerel in December of the same year, but

he ceases to be so in the January following. Such a bird as you describe is not a cockerel, but a cock, and, if a bird three years old, can only benefit by the term by being sold in 1870 as a cockerel of 1867, as "ci-dessus jeune homme."

**POULTRY FOR PROFIT** (W. H. P.).—You do not tell us enough. Before we can advise you properly we require to know whether you seek profit from eggs or table poultry; whether you purpose fattening and sending to market, or whether you intend to sell to a butcher. If you want a rough-and-ready useful fowl, keep the Brahma Poult, hardly to a proverb, an excellent layer, good mother, and average table fowl, making large, healthy, useful young birds for a country district. If you think of producing more excellent birds, keep the Game fowls. If you wish to keep for the table, good layers and sitters. They are not so early as the Brahmans. If you put your fowls in their house after dark, and let them find food and water when they come out in the morning, they will not stray.

**SPANISH COCK CATERHED** (Constant Reader).—The most certain cure will be a return to fine weather and the absence of the abominable east wind. Many thousands of human beings can sympathize with your Spanish cock. You must give him castor oil, a tablespoonful daily, till he relieves the indigestion of the maize. Feed on ground oats or barley; give a pill of camphor the size of a garden pea daily, and a meal of bread and ale night and morning till he is better. It is a severe cold.

**PLEASIN A POULTRY HOUSE** (R. H. J.).—Your fowls lack the proper dust bath. Ordinary dust will not provide it; it must be either wood ashes or road grit. Mix some black sulphur with it and put it where the fowls can be watered, and you will find the fowls bathing themselves in it, raising their wings, and throwing the dust into their feathers. This is a cure. It is supposed the exertion of moving over and among the particles of grit is no more comfortable to the parasites than used to be a pilgrimage to a distant shore with half a pint of hard peas in the shoes, and they give in. Thoroughly cleanse your house, and lime-white it thickly.

**HONDAS WHEN CRUE-CKETS** (A Working Man).—There is little difference between the birds. The Hondas are the harder, but if kept in summer and not too close to the cocker's feathers. The Crue-CKETS are by a much larger egg. Both are excellent Lewis. They are good winter layers, but lay late in the spring.

**CHICKENS IN A BOILER HOUSE** (A. J. W.).—We cannot admire the spot you have chosen for your chickens. We fancy it has either a stone or a brick floor. If it has, that will account for the cramp of which your chickens died, and will die. Remove the hen and her chickens, put her under a rip on the earth. Choose a spot where they will get some sun, and, if possible, where there is grass. Let the chickens have good beer to drink. Feed on bread boiled in milk, hard egg chopped fine, grits, and oatmeal, a little boiled sugar with half a pint of hard peas in the shoe, and they give in. Thoroughly cleanse your house, and lime-white it thickly.

**BRAHMAS' LEGS SCURFY** (Althamite).—It is common but not contagious. It lessens it to rub it with oil, but it is not curable. It generally makes its appearance during or soon after heavy snow.

**PULLET LAYING SMALL EGGS** (H. D. K.).—You need not condemn the pullet. The first clutch of small eggs is the first clutch of the year, and produces. It is evident in this case the secretions are at fault. It may last throughout the laying, but there is no reason to suppose it will continue afterwards.

**POUTER LOSING SECONDARY WING FEATHERS** (D. G.).—You did not enclose a feather; do so, and we can then better answer your query.

**FINCH'S SINGS FOR SCUTTING** (J. O.).—We must refer you to "Waterloo's Wanderings." Mr. Waterton was one of the best of bird-stufflers. Mrs. Lee's "Taxidermy" is also good.

### COVENT GARDEN MARKET.—APRIL 6.

BUSINESS remains much the same, and there is no alteration either in supply or demand that is worth notice. Some good new botchoses Grapes are offered, but will not yet entirely displace the retarded ones. New Potatoes from Malta, and early France Potatoes from Jersey, are in fair request at former prices.

#### Fruit.

	s. d.	a. d.		s. d.	a. d.
Apples.....	1	6	to 0	Malberries.....	quart 0 to 0
Apricots.....	1	0	to 0	Nectarines.....	quart 0 0 0
Cherries.....	1	0	to 0	Oranges.....	100 4 0
Chestnuts.....	bushel 10	0	to 0	Peaches.....	doz. 0 0 0
Currants.....	1 bushel 10	0	to 0	Pears.....	doz. 0 0 0
Black.....	do 0	0	to 0	desert.....	doz. 4 0 0
Figs.....	doz. 0	0	to 0	Pine Apples.....	doz. 0 0 0
Filberts.....	do 0	0	to 0	Plums.....	doz. 6 0 0
Cobs.....	lb. 5	0	to 0	Grapes.....	doz. 0 0 0
Gooseberries.....	quart 0	0	to 0	Raspberries.....	lb. 0 0 0
Grapes, Holland.....	lb. 2	0	to 0	Strawberries.....	doz. 1 0 0
Lemons.....	100 6	0	to 0	Walnuts.....	bushel 10 0 0
Melons.....	each 0	0	to 0	do.....	100 1 0 0

#### VEGETABLES.

	s. d.	a. d.		s. d.	a. d.
Artichokes.....	doz 3	0	to 0	Leeks.....	bunch 0 0 0
Asparagus.....	100 2	0	to 0	Lettuce.....	doz. 1 0 0
Beans, Kidney.....	do 2	0	to 0	Mushrooms.....	pot 2 0 0
Broad.....	bushel 10	0	to 0	Mustard & Cress, planted.....	doz. 0 0 0
Beet, Red.....	do 0	0	to 0	Onions.....	3 6 0
Broccoli.....	do 1	0	to 0	Pickling.....	quart 0 0 0
Brussels Sprouts.....	1 sieve 0	0	to 0	Parsley.....	doz. 0 0 0
Calabash.....	do 1	0	to 0	Parsnips.....	doz. 0 1 0
Capicums.....	100 0	0	to 0	Peas.....	quart 0 0 0
Carrots.....	bunch 0	0	to 0	Potatoes.....	bushel 2 0 0
Cauliflowers.....	do 6	0	to 0	Kidney.....	doz. 5 6 0
Celery.....	do 1	0	to 0	Radishes.....	doz. bunches 1 0 0
Cleworths.....	bunches 3	0	to 0	Rhubarb.....	doz. 1 0 0
Cucumbers.....	do 2	0	to 0	Salsify.....	doz. 1 0 0
pickling.....	doz. 0	0	to 0	Seakale.....	basket 2 0 0
Endive.....	doz. 2	0	to 0	Shallots.....	lb. 0 0 0
Fennel.....	do 0	0	to 0	Spinach.....	bushel 3 0 0
Garlic.....	lb. 8	0	to 0	Tomatoes.....	doz. 0 0 0
Herbs.....	bunch 0	0	to 0	Turnips.....	doz. 4 0 0
Horseradish.....	bunch 2	0	to 0	Vegetable Marrows.....	doz. 0 0 0

WEEKLY CALENDAR.

		APRIL 14—20, 1870.			Average Temperature near London.			Rain in last 43 years.			Sun Rises.			Sun Sets.			Moon Rises.			Moon Sets.			Moon's Age.			Clock before Sun.			Day of Year.		
Day of Month.	Day of Week.				Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	s.	m.	s.	m.	s.	m.	s.		
14	TH	GOOD FRIDAY.			57.9	36.1	46.6	21	9	45	52	af	6	53	af	4	57	af	4	13	0	16	104								
15	F				58.4	37.8	48.1	17	7	5	53	af	6	23	af	6	20	5	0	0	105										
16	S				57.4	37.1	47.3	27	5	5	55	af	6	49	af	7	46	5	15	after	106										
17	SUN	EASTER SUNDAY.			58.2	35.8	47.0	15	2	5	57	af	6	15	af	9	13	6	16	0	29	107									
18	M				56.8	38.0	47.4	16	0	5	59	af	6	37	af	10	45	6	17	0	43	108									
19	TU	Easter Monday.			59.0	35.6	47.3	10	58	4	0	52	af	11	23	7	14	0	56	109											
20	W				63.2	35.1	47.7	17	56	4	2	7	af	10	8	19	1	10	110												

From observations taken near London during the last forty-three years, the average day temperature of the week is 58.1°; and its night temperature 36.5°. The greatest heat was 77°, on the 18th and 19th, 1854; and the lowest cold 20°, on the 15th, 1862. The greatest fall of rain was 0.56 inch.

CONIFER PLANTING.



TRUST I shall not be considered needlessly bringing this subject before the readers of this Journal. I do so, because there are several modes, and to select the best is an object that concerns all who would adorn their gardens with Conifers. Happily this class of the vegetable creation is not so fanciful as to soil, &c., as was generally supposed some years ago; we now see many good specimens growing where even planting an Oak was little thought of before, and, owing to their very low price, good plants can be bought to ornament many waste pieces of ground.

I would here caution amateurs who are about to plant Conifers not to run away with the idea generally entertained, that the ground cannot be too poor, or that a cart-load of good manure will be the death of a Conifer; such is not the case; still I think the system of planting is of greater moment than manure, if the soil has any nutriment to afford.

I will take three ways in which Conifers are planted—namely, in hollows, level with the ground, and on mounds.

The third method has been commented upon in these columns, with no other facts than to say it was doing well or badly; but the question is, Is the system suitable under varying circumstances? Is this generally considered when we recommend or condemn a different plan? I think not. If we happen to see a tree doing very well, we are apt to accept its planting as a model for our future guidance, not taking into consideration the difference in soil and situation. An enterprising amateur on a visit here, who takes great delight in Conifers, seeing we had been and still were planting this class of trees, was struck with dismay at our planting them on mounds. "Mine are all level with the ground," he said. "What is your subsoil, your situation, your surface soil, &c.?" "All are good," was the reply, "but yours, I see, are quite the reverse."

We must now go back, and take the first system, which is not often adopted, nevertheless it is not to be overlooked, for in uplands, where the ground and subsoil is of a very dry and sandy texture, it is well the trees should be planted below the general level of the surrounding ground. This will not be approved of by some Conifer planters; but let me ask them if they have not been surprised when taking a ramble through a wood, park, or large shrubbery, to find before them unexpectedly some of the most vigorous and well-balanced trees which have come up, as it seems, spontaneously from an old hollow that had been excavated in years gone by, offering a grateful abode for a host of Ferns? Do we not often, when reading the travels of botanists, find them state that when they were crossing a mountainous country they came to a beautiful clump of such and such a tree in a hollow? I have ever found this the case in woods and parks with a light sandy soil resting on a gravelly or rocky subsoil. But the planter, in such a place, must be careful not to penetrate into a hard subsoil to carry out the design of planting

below the surface, for in doing so he makes a boundary for the roots, and in a few years the trees will be brought to a standstill.

I know of an avenue of Cedars that would be beautiful but for this cause. They did well until their roots came to where the pick and spade left off. Better far to plant on the subsoil, and cut a few loads of soil yearly to increase the depth of the surface soil; and here we come at once to the second method, or surface planting.

What I mean by surface-planting is not to raise the ground above the level, but as we generally plant other things. This mode is well adapted for good deep land with an open subsoil, and where there is efficient natural drainage, but if there should be any doubt respecting the latter, planting on mounds is certainly the safest plan, especially if the ground is very flat with a clayey subsoil; for of all soils, I think, a cold adhesive clay soil is the worst for Conifers; the exceptions are the Silver Fir and the Scotch Fir. White clayey subsoil seems almost essential to the former, while a red clay or marl seems to suit the latter well; at least, the finest I ever saw was growing on such a soil.

I would advise all who contemplate planting woods on a cold wet subsoil not to employ the common Spruce Fir. We have a large wood that was planted forty or fifty years ago, and the trees, although growing at a very rapid rate for the first twenty or thirty years, are now struggling for existence, and every storm that comes upon them tears them down by scores, and the timber, although 50 or 60 feet long, is only fit for firewood, being so rotten. Hence the necessity of putting stones beneath trees in such a soil, as much for keeping the central roots from penetrating the cold clay as for drainage.

I find that the primary cause of disease is from those central roots descending into this uncongenial soil, there perishing, and carrying the disease to the heart of the trees.

I am now planting some parts of these grounds with more valuable trees, and it may help some similarly situated if I describe the way in which I am inserting them. The situation is very high, facing the north, with a range of high mountains about six miles distant. It will at once be seen it is a very cold and bleak situation, added to which the soil is very poor and shallow, varying in colour, but principally a black heavy bog, here and there running to the depth of from 3 to 5 feet without a particle of sand or grit of any sort (and this is thoroughly saturated with stagnant water) resting on a white clay bottom.

My first performance was to drain it: in doing so we came across many old drains, which were completely choked up by not having enough fall to keep them clear, although the situation offered every possible facility for it. But the plan is here to put the drains in a horizontal direction, with a main drain for them to empty into. This may do if there is a main every 12 or 14 feet; if not, in this bog soil the drains act far better in a slanting direction, thus—



The drains are put at the bottom of the bog, and in

many places some feet in the clay, to afford a rapid escape for the water. We so manage them that they come under or by the side of the hole for the tree, which was dug 2 feet deep and about 8 or 10 feet in diameter; stones were put into the hole to the depth of 1 foot, and covered with branches. We then had four loads of turf from the sides of fields, roads, in fact from wherever we could lay hands on it. We also had one load of rotten farmyard manure, and the same of leaf mould. I should like a load of sand or grit. These materials, well mixed with the soil thrown out of the hole, made a mound 2 feet high in the centre, running off to the original surface.

The trees I planted last year in this way are doing remarkably well, while others, planted previously without any preparation, were generally doing so badly that many of them have been severed in the same way this year.

The following are a few which will succeed in a well-drained bog without any preparation:—*Cypripedium*, *Thujas*, *Cryptomerias*, and others.

It may be worth adding that, three years ago, the top of a fine *Arancaria* was broken off while removing it. It commenced making a new leader the same year, but very slowly. It is now a foot long, and I fancy the bottom part of the tree has been improved by it.—J. T., *Maesgwynne, South Wales*.

## THE OYSTER PLANT AND ITS CULTIVATION.

The increasing scarcity of that dainty shell-fish, the oyster, so dear in every sense of the word to epicurean tastes, may perhaps help to push into notice this plant, and lead to its being more cultivated and used either as a vegetable or a salad.

I have cultivated it for some years, merely as a curiosity, and I had at one time as many as between three and four hundred plants, which the frequent inroads of visitors, with requests for "just two or three of them," speedily made fewer. It is the *Pulmonaria maritima* of some botanists, the *Mertensia maritima* of others, and is well known from the curious fact that its fleshy leaves taste exactly like good, fresh oysters. When allowed to flower, the plant is of a trailing habit, with pointed, oval, glaucous leaves, the bloom upon which seems to be a saline incrustation. When cultivated, and the flower stems pinched off as they appear, the leaves grow about 4 inches in length, and are thick and succulent, little less so than those of the Ice Plant, and, like them, always cool to the touch and taste. Although a native of some of the coldest shores of Britain, those of the West Highlands and the Hebrides, it can yet appreciate, and seems to like best, one of the warmest spots in the garden.

Its culture is extremely simple, and may be stated in a very few words. Any time between the present week and the middle of next month, procure a number of small plants, the smaller the better, and with as much of the root attached as possible. For their reception, form a small trench by throwing out the soil one spit deep to each side. Fill this nearly full of very rotten hotbed dung, dig it over again, so as to mix the dung thoroughly with the soil in the bottom of the trench, then return that previously thrown out, and the result will be a ridge 8 or 10 inches high; level this on the top, and put in the plants with a trowel or dibber, taking care the roots are put well down. If the soil is of a light, porous nature, this is all that is required; but if at all heavy and inclined to clay, sand must be plentifully mixed with it, and the ridges made somewhat higher, as anything like stagnant moisture about the crowns during winter is sure to kill off the plants. When fairly growing, a dash of salt along the row during a wet day seems very agreeable to them. Pinch off the flower shoots as they appear, and also the heads, if they have any, of such slugs as may be found "prospecting" about for an oyster supper.

Under the foregoing treatment good large leaves will be obtained, and what to do with them will become the question. On this subject the French oracles are dumb; not within the whole range of culinary literature is the Oyster Plant even mentioned, and the presiding genius of that eminently practical department only thinks that if they are good for anything, they may, perhaps, do instead of Spinach; but for patties, "What an idea!" Well, I have had the leaves cooked as Spinach, than which they are infinitely better, which is certainly not saying very much; but by this process much of the oyster flavour is lost. I might also mention other ways in which the plant has been prepared, and highly relished by some, though in fairness I must add, by others pronounced

just a little green. However, some second Soyer may yet arise and touch the *Mertensia* with his wand, and give oyster-lovers a new sensation.—*AYRESHIRE GARDENER*.

## REMOVING THE FOLIAGE OF PEACH TREES.

Most gardeners have been taught to regard the leaf of a plant as one of the principal organs of its existence, and to deprive a plant of any portion of its foliage without due consideration is, no doubt, a very dangerous practice. Nevertheless, in our daily operations we often find it necessary to remove what we call superfluous foliage, and consider it an advantage to the plants. If so, is it beneficial to the Peach trees growing against walls to remove a portion of their foliage in autumn? Some people do so every autumn, even if there is no need, while others consider the practice barbarous at any time. I have been in the habit of removing the leaves every autumn with a few twigs of Birch, and have not found any injury resulting from the process. My reasons for it are the following:—

In this locality the Peach and Nectarine trees are remarkable for the length of time they retain their foliage in autumn, and in some unfavourable seasons the leaves remain on the trees in an apparently healthy state nearly to Christmas; such foliage is always at the extremity of the most vigorous shoots, which bespeak an unripened condition of the wood. Now, if we are to regard healthy foliage as a proof of activity in the tree, it can hardly be profitable to allow leaf-fall to go on at such an unreasonable time of the year; for the ripening of the wood is retarded, and consequently rest; moreover, the trees are overtaken by frost, which, under these conditions, is very injurious. Where such circumstances arise the soil is generally, as in this neighbourhood, of a very tenacious nature, very slow in accumulating warmth in the spring, but retaining it till late in autumn; consequently the crops are often very backward in the spring, but most luxuriant towards the autumn. It appears to me, that in such a soil, and in an unfavourable season, the Peach tree has not time enough to do its work; because in the summer of 1865, and again in 1868, the trees brought every one of their fruit to perfection, and completed their growth and ripened their wood in a much shorter time—not so with other seasons, for much of the fruit did not ripen, and the growth was more vigorous in September than at any other time. Doubtless the best remedy for this state of things is to provide thorough drainage to the borders, and increase the porosity of the soil by a liberal addition of mortar rubbish and road drift. Water would then percolate through the soil freely, the ground would become more speedily heated, and thus an earlier and more seasonable growth would be encouraged. No doubt there are many parts of the country similarly circumstanced, and I think it better to recommend the removal of the foliage than run the risk of injuring the tree by allowing it to continue its growth under such unfavourable conditions. A fine, warm autumn is beneficial to all kinds of fruit trees, and to the Peach and Nectarine particularly.—*THOMAS RECORD, Lillesden*.

## ERANTHEMUMS.

*ERANTHEMUMS* have foliage of exquisite beauty, and ought to find a place in all collections of stove plants, in which they constitute a very attractive feature. They are of very free growth, of easy culture, and quickly make excellent specimens.

*ERANTHEMUM RUBROVENTRUM*, a distinct and beautiful little plant, rivals in delicacy of veining the favourite *Anacardium*, but is of more easy culture. It may be grown in a basket or a pan. Suspended from the roof in a basket, it has a fine effect, as it likewise has when grown in a pan, so as to admit of its being closely inspected. It is also very beautiful when cultivated in miniature rockwork in a stove, with Ferns or choice plants. It very quickly covers the rockwork, and it loves to grow in a shady moist atmosphere. I grow mine in good fibrous peat and silver sand, to which I add a little loam and cocoa-nut refuse; for drainage I use charcoal. In this compost the plant quickly forms a lovely specimen.

*ERANTHEMUM LONGUM*.—This charming species comes from Peru. The long oval leaves are of an obscure dark green, covered with a diamond-like dust, through which there appear a central band and veins of golden yellow, shaded with fiery red in the central part. When the sun is shining upon it, the effect is very fine.

*ERANTHEMUM SANGUINOLENTUM*, a compact erect-growing plant, requires pinching to form a bushy specimen. It has

dark velvety green leaves, beautifully netted and veined with crimson, and the stem and leaves are thickly covered with red hairs. It is a charming plant. The compost I use is just the same as for the other two species.

Erantemiums are easily propagated by cuttings, and for the decoration of the stove or dinner table they are all that can be desired.—F. P. L.

### ZONAL PELARGONIUMS.

I VENTURE to send a few notes on my last year's experience, as I have been asked by several of my friends which I can recommend of those I have more recently tried, also which have stood the test of three successive seasons.

I will preface these remarks by saying that, with the exception of three or four beds, I do not grow a great number of a sort together; for instance, I had last year thirty diamond-shaped beds in a long, sloping border which surrounds one half of my garden, with sixteen plants in each. Another large oval bed was divided round the edge into twelve beds, with twelve plants in each, and besides another large mixed bed I had twelve other beds with from twenty-five to forty plants in each. This does not include Variegated, Bicolor, or Tricolor sorts. Practically, I find twelve good plants will enable one to form as correct an estimate of the value of a Pelargonium for bedding as a greater number.

Unfortunately have not the back numbers of THE JOURNAL OF HORTICULTURE by me at present, so cannot refer to some notes I sent on the season of 1868, nor to Mr. Luckhurst's notes on 1869, which were published last November; I consequently shall very likely go over much old ground.

To begin with, I planted out early in May last year, commencing on the 11th, and all my plants, with a few exceptions, were in a very forward state, most of them in full bloom, as I had kept them warm and growing all the winter. The only exceptions were some Lord Palmerston, Herald of Spring, and Miss Martin, which had been kept in a colder, only partially heated frame; and this I can confidently assert, that they never, all through the season, caught up those that had been treated with plenty of warmth and light from the very time they were taken as cuttings off the plants. I also took particular notice of those which were forward, and in most bloom, to see whether they suffered from it afterwards, and in no instance could I see that they had. Some of my plants, too, had been hardened off by being put into a brick frame without glass, and merely covered with frigi-dome at night, but I could not see that these stood the cold weather of June any better than those which came direct out of a warm though very light and airy house. Owing also to the system of warmth during the winter, I was certainly six weeks more forward than any garden either in my own immediate neighbourhood—in the north of Yorkshire—or any that I saw in the neighbourhood of London or elsewhere, with one exception, that of Mr. Koper's near York.

I allude to this more particularly, because though May and June were very backward and trying last year, yet the Pelargoniums, being well established before they were planted out, did not seem to sustain much check, and I do not think by the middle of July there was much difference between 1868 and 1869; so that the experience of last season only confirms me in the advice which I ventured to give last year, and that is to keep the plants growing all winter, with plenty of heat, light, and water. There is no comparison, too, in the pleasure during the winter between seeing plants growing in vigorous health, as in the heated frames which Mr. Pearson has at Chilwell, and plants which have a miserable struggle for existence in a cold frame, covered over with mats during frosty weather, and with a minimum amount of glass, and therefore of light, for fear of frost getting through the glass. I have seen Pelargoniums which have been wintered in the pans in which they were struck, taken out of the frames in March with hardly a healthy leaf on, and very often with half the cuttings in the pans damped-off. I have also seen old plants in store pots brought out with the largest leaves about the size of shillings or half-crowns, and the gardener to whom they belonged has tried to make me believe they were all the better, because they were harder, and that though they might be a little later (for he would allow this), yet they would last longer. I can only say that in this ungenial climate of England, however forward you may put out your bedding Pelargoniums, they will always go on blooming till the frosts of autumn cut them off.

I was also found fault with, if I remember aright, last year

by some who said very few gardeners had the means or convenience to keep Pelargoniums in this way during the winter. I am not, however, advocating this system for those who have not suitable houses, and who have only cold pits, but I am arguing against those who, year by year, advise amateurs to keep their bedding Pelargoniums as cold as they can during the winter, and say that a cold unheated frame is the best place and best treatment for Pelargoniums, and aver that fire heat only helps to weaken, and render the plants tender. I remember very well last year a brother amateur, a very good florist, told me that he had a visit from two neighbouring gardeners in March, when they exclaimed at his having in heated houses Pelargoniums in bloom at that time, and told him that those would be so tender that they could not possibly be fit for bedding-out.

Now, there are many gentlemen's places (I know several, and I have no doubt there are hundreds) where late vineries are never made use of all the winter; in these bedding Pelargoniums might be kept without any fear of starting the Vines, or in any way injuring them, and a fire could be put on in case of frost; or even if a fire were not allowed on account of the expense, it would be just as easy to protect the plants by means of mats inside a house, by twisting some hazel rods or iron wire over the plants, as it would be to protect a cold frame with mats. To prove that Vines do not start early with the heat which will keep Pelargoniums growing, I have all this winter had blooming specimen plants in a double-span vinery, with two rows of hot-water pipes round two sides of the house, and the other side merely separated by a glass division from a stove, and an average minimum temperature of from 12° to 43° was kept up at night; yet, although the Vines are planted in an inside border next the stove, they did not attempt to start till the first week in March. The pipes were going day and night, as they are in connection with the same heating apparatus that heats my stove and propagating pits, and though I have the means of cutting off the hot water from two sides of the house, yet I never did so, as I had some Tricolor and Bicolor Pelargoniums I wished to keep in good foliage, and I also wished to keep a succession of bloom on the ordinary Zonals; in this I perfectly succeeded, as there was no time in the worst part of the winter months at which I had not plenty of bloom. I had as many as from fifteen to twenty-five trusses out at the same time on a plant, and under the same treatment Tricolor and Bicolor Pelargoniums have had as good foliage as in the summer months out of doors. The houses are very light, double span, and glass all round from the height of the stages—3 feet from the ground—with large sheets of glass, and rafters to take 20-inch glass in width, so that plants of Pelargoniums do not become in the least drawn up in this way; in fact, though I have kept some of the Tricolors in a stove temperature, yet as they were on shelves close to the light, they do not seem to be in the least drawn up. I intend this year, as an experiment, to plant in the same bed some Mrs. Pollock Pelargoniums straight out of the stove, and others from a cooler house hardened-off, and see whether there is much difference between them. Of course, I am not for a moment advocating the plan of keeping Pelargoniums in stoves, shaded as our stove plants too often are, and drawn up amongst other plants, but I believe it is far better, if there is spare shelf-room near to the glass in a stove during winter, to keep Tricolor Pelargoniums there, rather than in unheated houses, and that all Pelargoniums will suffer far less from being over-hot during the winter, rather than from being too cold.

I have dwelt so long upon this point, from the wish to impress brother amateurs that they need not be afraid of warmth to bedding Pelargoniums during the winter, that I will defer my remarks upon the varieties till another week.

There is another, and, I think, a very material advantage of the system which I recommend, and that is that I do not cut my plants to pieces in autumn, but wait for cuttings till all the plants are taken up, and then whenever I have a variety which I wish to propagate as much as possible, I put the old plants into heat, after taking all the cuttings I can from the plants at the time, and so insure a second crop of cuttings in January. The cuttings I first take off are put six in a 4-inch pot on shelves close to the glass, in warm houses, in the full sun, or else on stages over hot-water pipes, and I begin to pot them off as soon as the new year has begun. From that time to bedding-out time the young plants are kept growing, their tops are pinched out from time to time, and they are never allowed to want water; and I find by the time I wish to bed them out they are quite as large as any cuttings taken off in

autumn, and far more forward in bloom than if the plants had been wintered in a cold frame.

I would also venture to give this advice to those gentlemen who are fond of the bedding-out system, and that is to build low double-span houses heated with hot water, to be expressly used for bedding plants, and that they ought not to expect their gardeners to furnish an immense amount of bedding-out plants in addition to the ordinary occupants of the stove, greenhouse, &c., merely on the makeshift principle. Though the bedding-out system has now been adopted for a number of years, and in spite of all that its detractors may say against it, is likely to hold its own for years to come; yet in many places no additional accommodation has been made for bedding plants, though, perhaps, two or three times the number of plants are now required. The consequence is, that many gardeners are now at their wits' end to know what to do with the extra stock of plants that are wanted, and have to shift them about from place to place. Double-span houses about 10 feet wide, with shelves on each side and in the centre, can now be built so cheaply, and will hold with proper care so many plants, that they are well worth the small expense incurred; and low double-span pits, such as recently described by Mr. Pearson, of Chilwell, heated by hot water, can also be put up at a very reasonable expense. I know many gentlemen, who will go to almost any expense on their Vines, or on Orchid houses, yet will grudge any outlay on houses for growing plants for the summer decoration of their gardens. Yet, however interesting Orchids and Orchid houses may be, very few ladies can stand the temperature of the houses in which such plants as Orchids grow; whereas the flower garden will be a daily object of interest to them during the summer months, and the more care and attention bestowed on bedding plants the earlier will that interest begin. Why is it, for instance, we so seldom see *Verbenas* in gardens now? Because so very few persons take sufficient care of them during the winter months, but keep them in cold unheated pits, dry at their roots, and in a stagnant atmosphere, and then attribute mildew, damping-off, green fly, and other ailments, to the constitution of the plants themselves, and say that *Verbenas* are deteriorating.—C. P. PEACH.

#### ORCHARD HOUSES.

I READ through "T. F.'s" letter in page 260, getting more and more puzzled till arriving at the last paragraph, which explained all. "Clever gardeners" and orchard houses, as a rule, do not agree. I speak with some knowledge, having had orchard houses for more than ten years, and no "clever gardeners" to manage them. Several of my friends with large places and really first-rate gardeners, have put up orchard-houses and have failed.

The explanation is, I think, simple. A high-class gardener considers Orchids the highest branch of his profession, then other stove plants, then conservatory plants, and he pays some attention to Grapes and forced Peaches. But a cold orchard house, to succeed, does not require great skill and experience; it resolves itself into a question of hard work, much watering, attention to a few simple rules, and last, not least, taking a pride in it, which you could not expect from every "clever gardener."

When "clever gardeners" do give their minds to orchard houses they produce really model trees, as may now be seen in all their beauty in the large orchard house under Mr. Barron's direction at Chiswick. I do not profess our pot trees to be anything like model trees; many of them have suffered from various experiments, chemical and mechanical, but they do bear more fruit than could be obtained in anything like the same space or for the same cost trained on walls or trellises. Our Peaches and Nectarines pass muster with the best judges, and our Pears two or three years ago took the first prize for "single dish for flavour," against thirty-six competing dishes. Note, these last were ripened out of doors.

I think, therefore, that I am justified in saying to those thinking of putting up an orchard house, and who may have been staggered by "T. F.'s" strong denunciations, Read Mr. Rivers's "Orchard-House" (not forgetting to bless those, of whom I was one, who got him to put an index), then put your orchard house into the hands of a hard-working man who will make it his hobby, and you will find, as I have done, that not only you will have an object of great interest and delight, but that you will have more and better fruit than your neighbours, who have more expensive appliances and "clever gardeners."

Of course, I am not speaking of forced fruits, which require both skill and training in the gardener. Our fruits include Cherries, Plums, Apricots, Strawberries, Peaches, Nectarines, Figs, Pears, and American Apples. To those who desire to combine Grapes in quantity, or who can stand the extra expense, I would recommend the looking into Mr. Fountain's new plan, now on trial at Chiswick, of having the trees on trucks, and so running them in and out according to weather, as I believe it to have points of great merit.

The lady birds are with us here, as described by Mr. Pearson, swarming on the Thujas, especially the *Thuja aurea*; they appear to have hibernated in thick close-growing shrubs.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

How unfortunate "T. F." (see page 260) has been in his orchard house. It is, however, quite probable that he may have been just a little unskilful, and pinched his trees over-much, which has led him to think his trees "cribbed, cabined, and confined," as they must have been as scorchy "toys." He should have been with me to-day in the full enjoyment of my trees, for I have rarely seen them in such beauty. Among my "toys" are *Amorites*, in 18-inch pots, full of fruit as large as horse beans, and capable of bringing to perfection a peck each; and pyramid Peach and Nectarine trees 7 to 8 feet high, in 15-inch pots, full of blossom from head to foot, full of health, and bare of insects. They have for many years been pinched, and are more beautiful and hopeful than ever. It is to be feared that a want of skill and care only has brought on failures among some gardeners. A skilful gardener could not possibly fail in the culture of Peach trees under glass, the business is so simple. If "T. F." would like to see my trees, you are at liberty to give him my address. The sight of my trees would, I fear, give him no comfort, but it might some profit.—O. H.

#### WINTER-FLOWERING ORCHIDS.—No. 4.

##### DENDROBIUM.

THIS is a very extensive genus, and many of the species produce flowers which rank among the most beautiful in the order; this, in conjunction with the fact that the majority of the species are easily cultivated, and produce their blooms during the particular season in which flowers of any kind are so valuable, should render them special favourites with all lovers of plants.

The genus *Dendrobium* does not exist anywhere on the American continent or in the West Indian Islands, but in Hindostan and the East Indian Islands they abound, extending even to Australia, where many species of this family are found; but all these, as far as my own experience goes, are totally distinct from their Indian relatives.

These plants may be grown either in pots or baskets, except a few which succeed best upon blocks of wood suspended from the roof of the house, and, in this respect, those with limited space at their command reap the advantage, as the roof accommodates a number of species as well as the stages. To speak in general terms of their culture, they thrive well in a mixture of equal parts of peat and sphagnum moss; and ample drainage should be provided in the shape of potsherds, or, preferably, pieces of charcoal. This material is suitable for either pots or baskets, but those kinds which are grown upon blocks require only a little sphagnum. During the growing season all require a copious supply of water, both from the watering-pot and the syringe, and those upon blocks should, in addition, be taken down every two or three days and immersed in water. Whilst referring to water, it cannot be too strongly impressed upon the minds of all plant-growers, that the use of water at a lower temperature than that of the house in which the plants are growing, is one of the greatest causes of ill-success; therefore, never use cold water to Orchids, but let its temperature be several degrees higher than the atmosphere rather than one degree lower. After the pseudo-bulbs have attained their full size the plants must be kept drier, and gradually inured to a lower temperature to prevent them making a second growth; by this means they rest completely, and the amateur will have the pleasure, in due time, of seeing the flowers pushing out from the nodes, when a little extra heat will be beneficial.

Little more remains to be said respecting the cultivation of *Dendrobiums*. During the growing season I keep them in a temperature ranging from 70° to 85°, and after the period of growth, those with the strongest constitution require little

more than the warmth of an ordinary greenhouse. This remarks applies, however, to but a few species. The following produce their flowers during winter, but many others of this genus are summer-flowering.

**D. BARBATULUM.**—This is a very beautiful species, often cultivated under the erroneous name of *D. Heyneanum*. It is a small-growing plant, succeeds best upon a block of wood, and must not be dried very much at any season. The flowers are pure white, slightly spotted with deep red at the base, and are borne upon erect spikes. Its very elegant blooms are produced at the end of winter. Native of Moulmein.

**D. BIGEBBUM.**—A very elegant, but somewhat difficult plant to manage; at least, it has hitherto proved so with me. It is a native of the north-east coast of New Holland, and consequently requires more heat than plants coming from the more southern parts. The pseudo-bulbs are stem-like, and the leaves, which are few in number and somewhat small, are confined to the upper portions of the spikes, which are erect, and bear in strong plants about ten flowers, which are moderate-sized. Petals and sepals very round, somewhat thick, and deep lilac in colour. The lip is three-lobed, and darker than the petals. It lasts a very long time in full beauty. It should be grown in the same temperature as the East Indian species, but reared in a cooler house, and care must be taken that it do not suffer from want of water. Pot it in peat and sphagnum, in which some silver sand has been mixed, and use plenty of charcoal for drainage.

**D. CHRYSANTHUM.**—An old and free-growing species, which should be grown in a basket. It blooms at various times of the year, very frequently in midwinter. The stem-like pseudo-bulbs are pendulous, and about 3 feet in length; the flowers are rich golden yellow, with a dark spot on the lip, producing a beautiful effect. Plenty of water and moderate heat during the growing season, with a slight rest, will ensure an abundant crop of blooms. It comes from northern India.

**D. CHRYSOTOXUM.**—Pseudo-bulbs erect and much swollen, bearing upon the apex several dark green, somewhat leathery leaves. The flowers are produced upon long pendulous racemes, and are pale yellow in the sepals and petals, with a darker lip. It blooms during February and March, sometimes later, and retains its beauty a long time. It should be grown in a pot, and subjected to a thorough rest after the growths are mature. From Moulmein.

**D. CRASSINODE.**—This is a plant of such recent introduction that I can say but little of it practically, but it is such a gem that it must not be left out. The stems are much swollen at the joints, as its name implies, and from these thick nodes the flowers are produced in great profusion. The sepals and petals are thick and waxy white, tipped with deep rose, the petals being much larger than the sepals; the lip is roundish ovate in shape, white, tipped with rose, and the disc is bright orange yellow. It is a most lovely species, blooming late in winter and early in spring, and from the great substance of the blooms it lasts a very long time in perfection. Native of Siam.

**D. DENSIFLOREM.**—Although not, strictly speaking, a winter-flowering species, this plant often produces its flowers early in March, which is often very wintry. The pseudo-bulbs are about 12 inches or more long, becoming thicker from the base upwards, and supporting several broad, leathery, deep green leaves upon the apex. From amongst these, or just below them, the long and dense pendulous bunches of rich amber-coloured flowers are produced. It is one of the handsomest of the genus, and it can by a little retarding be made useful for public exhibition. Pot culture suits this species best, and it should be thoroughly rested when the growth is complete. Native of northern India.

**D. FIMBRIATUM OCLUTUM.**—A tall-growing plant, flowering generally very early in March. It should be grown in heat, and then be removed to a cool house and kept dry. The growths are between 2 and 3 feet high; flowers large, deep orange yellow, with a deep brown velvety blotch at the base of the lip. It requires pot culture. Introduced from the Indian hills.—**EXPERTO CREDE.**

## AURICULA CULTURE.

I HAVE so often derived valuable instruction from Mr. Keane's directions in "Work for the Week," and hope often to do so, that I feel very unwilling to find fault; but in the directions given at page 247 I find the following—"Whilst the blooms [of Auriculas] are unexpanded, slight showers will be of service, when not accompanied with cutting winds, but as soon as

they are open moisture overhead should be avoided, as it is apt to disturb the paste of the eye, and to give the flower a smeared appearance." Now to this I utterly demur. I never allow Auriculas to have a shower of rain on them from January to December, and least of all should I think of allowing them at this season. Independently of the flowers, there are many of them which have beautiful mealy foliage, and when a drop of rain falls on this it leaves a smeary spot, which destroys the beauty; so let me, as a very old Auricula-grower, lift up my voice against this direction.

Auriculas are very late this season, but, as far as I can see promise well. I do not think there can be a good show of them on the 20th of this month. By-the-by, I saw in a contemporary the other day a list of sorts purporting to be given by Mr. Charles Turner, but there must have been some mistake—there were no grey-edged flowers in it, and some of those classed as green-edged were grey-edged. I would here add a list of a dozen good ones, not very expensive:—

Green Edges.	White Edges.
Hudson's Apollo	Poppewell's Conqueror
Campbell's Lord Palmerston	Taylor's Glory
Oliver's Lovely Ann	Heap's Smiling Beauty
Grey Edges.	Selfs.
Waterhouse's Conqueror	Martin's Mrs. Sturrock
Fletcher's Mary Ann	Netherwood's Othello
Fletcher's Ne Plus Ultra	Lightbody's Meteor Flag

—*D., Deal.*

## FLOWER SHOWS, COMPETITORS, AND JUDGES.

Why do the London flower shows not pay? How is it that the thousands who used to flock to them for recreation and instruction no longer visit them in like numbers, and our London Horticultural and Botanical Societies cannot now be made to pay their expenses? This is to be deplored, because flower shows are unexceptionable as a source of recreation, and stand high among those good and useful institutions which instruct, refine, and help to bind together the various classes of the community. Men of all shades of religious opinion, all parties in politics, rich and poor, may here meet together and smile upon each other if they will. The extinction of our flower shows would in my judgment be a national loss. I therefore sympathise with the noble efforts the London Societies are making to uphold them, and only wish that I could help them more than it is in my power to do.

But why do they not pay? No doubt many reasons combine to account for it. In addition to what I have already advanced (see JOURNAL OF HORTICULTURE, pp. 220, 221), one principal reason (and this, perhaps, includes some of the minor reasons), is that they are not "fast" enough for the taste and fashion of the present age. The breakneck pace at which society loves to travel, even at the risk of serious discomfiture, is impossible here; "fast express" trains do not run on this line. The plodding industry necessary to success in horticulture, and the results which flow from it, seem alike tame and dull to fast and fashionable life; while the more thoughtful and sober-minded, to whom we may consistently appeal for help, are, consciously or unconsciously, influenced more or less by fashion.

Among the minor causes which are antagonistic to the success of our London shows, although, perhaps, favourable to the advance of horticulture in general, is the fact that most cities and large towns have now good shows of their own; the inhabitants are interested in supporting them, and will not go far to see what, in their estimation of things, may be seen as well at home. Further, our shows for the last few years have been too similar in character—so much so, that the ordinary observer pronounces them the same thing over and over again. Then, perhaps, quite lately they have not been so good in the eyes of the public, or so important in the eyes of the exhibitors, as they used to be. Hence the general public does not come because the shows are not so fashionable as formerly, or are wanting in freshness, and exhibitors are withdrawing because the shows are not more numerously attended.

And here I would pause to ask, Do our present competitors and judges fairly represent the intellect of the horticultural community in England? In the past it has been taken for granted that it was so, and as there is no purpose to serve in arguing over the past I shall content myself with inquiring, Is it so in the present? Here is a question which should not be shelved because the answer to it may affect individual interests, nor should it be settled without a searching investigation of the facts. Let anyone who has a fair knowledge of English gentlemen, English nurserymen, and English garden-

ers put this question to himself, and I venture to think the answer will be an emphatic No. Unquestionably some of the first men in all classes compete for prizes, and win them too, and some of the first men are appointed as censors; but for one of the highest calibre who competes or judges constantly or frequently, many of the same calibre take no active part in the matter.

It must be known to the regular visitors of our London flower shows, that exhibitors who have long figured as stars of the first magnitude, rising and setting with planetary regularity, now shine less frequently, and some are disappearing altogether—departing to shed their light in other spheres. I believe that there are more good and beautiful things now than at any former period which never come up for judgment before our judges or floral committees. There must be reasons for this. With regard to the exhibitor of novelties, the occasional thefts which have been practised at flower shows of late have, no doubt, acted with him as a powerful deterrent. Then the grounds on which our censors act are not very clearly defined; there are different schools of opinion, and hence the glorious uncertainty of prizes. How often collections of plants and flowers are exhibited on the merits of which there are conflicting opinions, the exhibitors and their friends agreeing on one point only—that the prizes depend on who are the judges. Hence your first-class man who may belong to another school than that from which the judges are chosen, may find his productions branded with a low mark, when he and his school think them entitled to a high one. "Better not marked at all" is their reasoning. I cannot but think here that it would be in the general interests of horticulture that the names of the judges should be published in advance. In the present state of things the managers of our flower shows find by experience that, in order to obtain the necessary complement of plants and flowers, they must consult the wishes of the competitors as to the selection of judges, and the exhibitors often virtually, although not ostensibly, appoint them. This may be necessary to secure a large show, but does it serve the best interests of horticulture? Does it not open the door to combinations from without, against which a dreaded rival or an independent exhibitor cannot contend on fair and equal grounds? Further, the practice of appointing nurserymen as judges does not commend itself to my views. What has he to judge? The productions of his rivals or his customers! However sternly honest he may be, his position is a false one; he is unavoidably open to distrust because preeminently interested in the issue.

The next question that I have to propose is, Can our flower shows be made to pay? What are the causes which induce horticulturists, amateur and professional, to bring their productions before the public? The English horticulturist, although often humble and plodding, is not destitute of chivalry, and the love of breaking a lance with a rival or a friend no doubt influences many. But fame of another kind, and money, are perhaps more common influences, especially with professional exhibitors. For the acquisition of these a man of the highest order of intellect sees many avenues open to him, and this one must be made more attractive than the rest to induce him to enter it, or if once within to hold him to his course.

Perhaps flower shows might still be made to pay if exhibitors would be satisfied with smaller money prizes. I do not condemn the practice of giving large money prizes. Although one of the leading journals (not horticultural) once pronounced the system to be tantamount to giving an annuity to certain firms, we know by experience that the largest prize is money laboriously earned. But if the Societies cannot afford to give large prizes, we must accept small ones, or look to other sources to maintain the footing we have acquired, and to secure solid standing ground whence to push forward the work in which we are engaged. I have often thought that if nurserymen generally would give special shows of their specialties, trusting to sales and the publicity thus gained to recompense themselves—if amateurs and gardeners generally would send anything remarkable, not necessarily for competition or for large money prizes, but specially for honorary rewards, the new features of such exhibitions might for a time at least prove attractive. But the question naturally arises, Will they do this? Doubtless many will, but how many cannot be ascertained otherwise than by experiment. In my judgment, as concerns the nurserymen, the business of the future will lie with those who show and sell, rather than with those who only show, good plants and flowers. Beyond this, professional exhibitors of forecast will perceive that if not actually paid in coin for their

labour, the *préstege*, position, and influence they acquire by exhibiting are capital well invested for their interests in the future.

In conclusion, it seems to me that horticulture has never received from the state the recognition it deserves, and this, probably, for no other reason but because its ablest representatives have been comparatively humble plodding men. But is not humility one of the first of Christian virtues? and are not the plodding men a chief source of strength and wealth in a great commercial country like this? Some few years since a great impulse was given to horticultural pursuits by the removal of the duty from timber and glass, and our Government has done much of late by a wise and judicious expenditure in decorating the public parks. But the whole thing wants lifting bodily. The cultivation of fruits, vegetables, and flowers is already an important branch of national industry, is becoming more and more so every day, and the study and practice of it is calculated to make good men and good subjects. The Belgian Government, prompted by their late wise and virtuous King, Leopold I., saw this, and Belgium has benefited largely as a country by the efforts of its Government to lift horticulture in the scale of useful and industrial arts.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, N.*

### CONIFER NOMENCLATURE.

I QUITE agree with "C. W. D." (see page 243), that there is a good deal of confusion in the nomenclature of Conifers, but at present I really do not see how we are to get out of it. I have as complete a collection of this tribe of plants as can be met with. I take great pains to keep them true to name, yet am always in difficulty. I had a letter a short time ago from one of the greatest Conifer authorities containing a list of about thirty coniferous plants, and asking if I could spare any of those kinds and vouch for their being correct to name. I really thought this beyond a joke. I had been in the habit of carefully studying his articles on them, where he pointed out to amateurs the many synonyms which different Conifers bore, and the great doubts that existed as to the propriety of names borne by many of them; and yet this very authority that I had been worshipping, as it were, asked me to spare him a few rare species warranted true to name! Had I sent them, I should have been quite prepared to have received several of them back again with a message that this one was not of Hartwig, that one not of Douglas, &c. Only yesterday a friend brought me a gentleman who pretended to know much about Conifers. I showed him my wonders, and at the end of our tour he told me I had a marvellous collection, but I had no *Sequoia*. I tried in vain to explain that some *Taxodiums* and the *Wellingtonias* were called *Sequoias*, but that it was a name rarely used; notwithstanding this he actually tried to assure me that there was a plant known wholly and only by the name of *Sequoia*, and I ought to get it. Here, thought I, is a victim to the "confusion in the nomenclature of Conifers."

A few foreign lists are helping to get us farther into difficulties by adopting Carrière's classification. Thus, our old friend *Cupressus Lawsoniana* becomes *Chamaecyparis Boursieri*, *Cupressus nutkaensis* is the new name for *Thujaopsis borealis*, *Retinospora leptoclada* (sent out, I believe, by E. G. Henderson & Son a few years back), rejoices in the longer title of *Chamaecyparis sphaeroides andelyensis*, and *Pseudotsuga Douglasii* replaces *Abies Douglasii*.

"C. W. D." is quite correct in presuming the *Abies taxifolia* he saw at Dropmore is a variety of *A. Douglasii*. It has shorter foliage, and is quite a distinct-looking tree; it does not, however, come true from seed (I have sown imported seed of it), and is therefore rarely met with. Less confusion, I imagine, would arise if nurserymen, or even amateurs, were to affix the botanists' name after each kind. We desire no more new names. Conifers do not want re-classifying. The *Araucaria* would have just the same majesty if it were henceforth to be called *Agaricus*, but there always will be the same confusion unless both dealers and collectors affix the botanists' name as I have just proposed.—GUTHRIE.

### GLAZING WITHOUT LAPS.

HAVING just completed the glazing of upwards of 4000 square feet without laps, I am able to render "POPLAR" some assistance. For the last two years I have been making experiments in growing fruit trees in glass structures, which I have called

"double walls of glass," and in consequence of my expectations having been realised, I have just added 200 feet to my former glass walls, all of which have just been planted with fruit trees of various kinds, mostly trained on a trellis. The Cherries, however, are of the pyramidal form. These trees, having been obtained in pots from Mr. Rivers, will bear a good crop this season. But as the object of this communication was merely to give "POPULAR" the result of my experience in glazing on a plan invented by myself, I must reserve all information respecting the mode of growing fruit on this plan until another occasion.

The rafters, having been grooved to a width a little more than the thickness of the 21-oz. glass, are placed in a tank containing creosote, where they are boiled for twelve hours; they are removed from the tank while the creosote is in a boiling state, and in a few minutes they are dry, in consequence of rapid evaporation; in a few weeks the colour becomes brown, and in the course of a year or so the colour becomes so bleached that the building might be vanished if it were considered necessary, but no paint is ever required. On the rafters being fixed the glass is slipped down; nothing is ever used in the grooves for packing, as a copper clip is used to keep the glass tightly in the groove. About two hundred of these clips are cut out of a sheet of very thin copper. They are of a triangular form, the acute angles being bent downwards by means of a mandril made for the purpose. These clips are forced into the grooves immediately above the upper angles of the glass. I am rather proud of this invention, as it is simple and effects four purposes, the most important of which is to prevent the glass slipping down on one side of the glass below it; the next is that the clips keep each pane tightly in the grooves; thirdly, the thin layer of copper prevents the edges of the glass touching, and thus chipping of the edges is prevented; fourthly, the space between each edge allows of gentle and genial ventilation throughout the structure, which is of great service at night, if at any time the air be excluded above. There is no putty and no paint in any of these structures, so that the weather has no effect upon them. If a pane of glass be broken, the gardener slips another in from the top.

If "POPULAR" or any other person, would like to see these structures, my gardener would show them. I patented them to prevent any one interfering with me while making my experiments; but I should be happy to allow any amateur to use the patent for scientific purposes, or even otherwise.—OSBERTON.

#### A FEW MORE THOUGHTS ON READING MR. W. PAUL'S DENUNCIATION OF FLOWER SHOWS.

I QUITE acquiesce in all that Mr. C. Turner says in the last week's number in regard to the extraordinary views that Mr. Paul has recorded in a previous number, on the question of "Flowers and Flower Shows." My experience as an exhibitor only extends over the short period of fifteen years; my forte has been with the Hyacinth, Tulip, and other Dutch bulbous plants, and during that period I have maintained the premier position thirteen years, therefore I presume that my opinion on the subject is not unimpaired. When I first entered the field it was with a dozen Hyacinths, at a meeting held in the old Horticultural Society's rooms in Regent Street, and the remarks made upon those flowers by Dr. Lindley fired me with an energy that has resulted in the increased size and beauty of these early harbingers of sunny times, which one usually expects to see at our annual spring shows. I question very much whether I may not attribute my own success with these bulbs solely to the fine effect produced, and having "first prize" placed so often against my name; all I know is, on referring to some old books, that when the first dozen was shown our importation did not exceed £50 in three years, but it now exceeds ten times the amount, and goes on increasing. Surely this will prove that the public taste does not recede; and although Mr. Paul may assert that there is a good deal of what he calls "floricultural millinery," it is impossible to apply it to the Hyacinth, for no flower requires less artificial help to make it presentable at Flora's court. It is possible that he may have observed small pins sticking into the flowers, and the drooping flowers of a loose truss brought to look you in the face by the footstalk being tied to the stem by an almost invisible ligature of fine green silk, and if he has seen this it is to be hoped he fully exposed the individual, I cannot call him florist, who acted so thoroughly in opposition to every true lover of nature.

I should quite agree with Mr. Paul's remarks if I could

believe that the nurserymen alone reap benefit from flower shows, and at once say, Down with them, even to the dust; neither can I say that visitors are disappointed when they jot down the names of the best flowers they see, and procure them, nor does my short experience determine me in saying nurseries are less visited than formerly. When I look round London and see the enormous increase in the numbers of the profession, it certainly does appear that the taste for gardening has most marvellously increased, and this must be attributed, to some extent, to the effects of flower shows. Why are there so many local shows from one end of the country to the other? Certainly not solely for the pecuniary advantage of the nurseryman. No; out upon aulist who, solely for the love of gain, takes to that highest branch of Nature's decorative art. Those whose names we see so frequently in the Journal as associated with certain of Flora's gems are not pecuniary gainers by worshipping at her shrine, which anyone may readily prove on reading their names. If, then, by flower shows we can further the taste for flowers, it is our bounden duty to do so, for, depend upon it, the cultivation of plants has an influence upon a people, most conducive to their welfare. If I never enter the arena again as a competitor my energy will never slacken in inducing others to do so, and I advise them to avoid lying themselves open to unjust criticisms, such as are so liberally bestowed, as far as I have experienced, in the denunciations of exhibitors and exhibitions, and I protest against such a charge of dishonesty being associated with our noble profession.—JAMES CUTTISH, *Hilgate*.

#### GARDENERS' ASSISTANTS.—No. 2.

##### THE ARCHIMEDEAN LAWN MOWER.

IN this we have one of the most original inventions that has come under our notice for several years. Mowing machines have driven the old-fashioned scythe almost out of sight, leaving it no work to do but round corners and amongst rough stuff. The very fineness of the construction of our patent English lawn mowers has, however, proved somewhat of a weakness. The grass for their proper operation has to be of a certain quality, without bents, &c., and of a certain height, otherwise they will not cut it.

In the Archimedeal lawn mower, which comes to us from America, we have something quite original, and differing materially from all others. It is a very simple machine to look at, and a very little affair altogether, yet it is so constructed that it will cut grass in almost any condition, and of any height. The knife, or cutter, is in the shape of the simple Archimedeal screw, which, being set in motion in the usual manner, revolves with great rapidity, and, as it were, overlaps the grass in front, beating it down on the cutter-bar fixed at the bottom. In this way not a single leaf which the screw is enabled to overlap escapes uncut. There is no roller in front to lay down the grass; the Archimedeal takes it just as it stands. Instead of the rollers, there is a flat skid or sole on each side, on which the machine slides easily along; and by raising or lowering this sole by means of a small screw-cut the height of the cutter is regulated. In this way it can be set to cut the grass close to the ground, or an inch or more above it, as may be desired, which is an important feature, as by going over the ground two or three times a very heavy sward of grass may be inch by inch reduced. The height of the cutter may also be regulated somewhat at will by the operator's raising or lowering the handle of the machine, and thus it is enabled to cut readily up hill and down hill, and over uneven ground.

Another peculiar feature is, that the grass when cut is not gathered up, but scattered on the ground the machine passes over. If the lawn is cut regularly, as it should be once a week or so, it is not necessary that the grass should be gathered up, but, on the contrary, it may be allowed to lie. This may seem a little untidy, but it is not so. In America in this way only can freshly-cut lawns be kept from scorching, and in this country we often suffer from the same cause. The grass, as cut by this machine, serves as a mulch and protection from the sun's scorching rays, likewise as a fertiliser of the sod; and this I can positively affirm to be the case from experience during last year. Our lawns operated upon by this machine never looked so well. When the grass is very abundant it is easy to have it swept up.

Having used this Archimedeal lawn mower for several months during the past year, I am enabled to speak decisively respecting it. It will cut grass quite as well in a wet state as

when dry, so that the work may be done at any time that is most convenient. All who have seen it at work here have been quite charmed with its performance, and all the workmen, who are generally very slow to take up with new things, especially those which tend to the economy of labour, are quite delighted with it, and will use no other.—ARCHAMBAUD.

### TABLE DECORATIONS.

LAST season, the stands we used for the decoration of the dinner-table here were in constant use for something like eight months, and to keep these trim and nice is not only a heavy tax on one's time, but also on one's resources; however, having given entire satisfaction, I consider I was amply repaid for my trouble. As the provision for table decoration is becoming more and more a task allotted to the gardener in an establishment, I venture to detail what I have done.

I will first observe that Ferns and Mosses are among the most useful things for the decoration of the table, and even such a common thing as the Male Fern (*Lastrea Filix-mas*), which may be found in the hedgerows in almost every parish, is of great value for forming a fringe to the dish of a stand or centre piece. Equally valuable is the native Welsh Polypody (*Polypodium vulgare cambricum*), which makes a nice change with the Male Fern, the handsome fimbriated edging to the fronds adding to its worth. It is by no means so common as the Male Fern. That charming greenhouse Moss, *Selaginella denticulata*, is another useful thing for the purpose. I use plants taken out of small pots to fill the base of a stand, and fill up between the balls with silver sand, using about four plants for the purpose; and with the sand I mingle some powdered charcoal to neutralise the effect of any offensive smell that will sometimes arise after the plants have been placed in the sand several days. After a sprinkling has been given to settle the sand about the roots of the Moss, the branches should be pegged down neatly with small hair-pins. If watered about once a week, the *Selaginella* will grow very nicely, and keep beautifully green for two or three months together. Scarlet Pelargoniums and other flowers can be stuck in the sand by their stalks to give a finish to it. That popular form of the Maiden-hair Fern, *Adiantum cuneatum*—perhaps one of the most lovely of the Ferns, notwithstanding that it is common, and always a great favourite with the ladies—is also of great value, and makes a beautiful fringe for the top dish of a design, it being so light and graceful. Some five or six years ago Mr. Charles Turner, of Slough, was a competitor at one of the Crystal Palace exhibitions with a vase of Roses, and by way of giving a finish to his vase he used fronds of the Maiden-hair Fern among his Roses, which was a great improvement on the formality of a bunch of this favourite flower, but the vase was disqualified by the judges in consequence. Now, it is the custom for the schedule of prizes to state Ferns can be used, and no disqualification follows as a consequence; and the same thing also holds good at South Kensington as well as at Brighton.

There are certain plants that are very useful for twisting round the upright stem of a stand used for the decoration of the dinner-table; and branches of these should be stuck in the sand, and then be neatly and elegantly twisted round the stem; and a few ties should be placed up the stem at intervals to keep it in its place—fine thread or wire can be used. The Japanese Honeysuckle, *Lonicera aureo-reticulata*, is one of the best for the purpose; so is *Dioscorea batatas*. The common Ivies I find to be too heavy. *Tradescantia zebrina* is a nice thing to hang over the top dish, especially if some cuttings are placed in a 32-sized pot in some light sandy soil, and allowed to hang over the sides of the pots till rooted, and then shaken from the soil and laid round the dish, with a little silver sand about the roots. The heads of the plants should hang over the sides, and they will grow freely, and last for six months if required. Of pendulous growth, and variegated foliage, the effect is charming and effective. The silvery-leaved *Centaurea candidissima* and *argentea vera* make a nice change, and the leaves can be used to make a layer inside the Ferns in the bottom dish. Besides the scarlet flowering Pelargoniums, the white flowering ones, like *Madame Vaucher*, as well as the sweet-scented kinds for the perfume the leaves yield, are also very desirable. The flowers of the scarlet and yellow *Nasturtiums* last a long time in the wet sand. *Verbenas* make a nice change in their season, and especially *Roses*; the flowers of these should be cut young in the morning when the dew is on them.

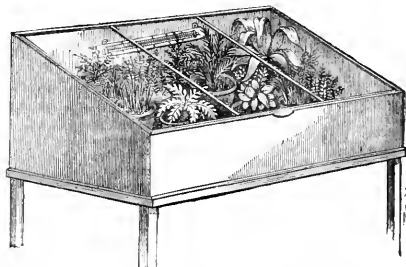
Such stands as these are never complete without light-green foliage of some sort or other, such as the different kinds of ornamental grasses in their season, and the tops of some of the meadow grasses in the autumn. In the same way sprigs of Asparagus from the kitchen garden are very useful; so is the foliage of *Tamarix gallica*, a hardy deciduous shrub; also *Humea elegans*, and suchlike. Variegated plants work in well; the *Fresine*, with its handsome mottled red leaves, keeps well in the sand; so do *Colerases* and variegated Pelargoniums; of the latter, such as Mrs. Pollock, and the white Ivy-leaved kind *L'Elegante*. Then there are blooms of *Gladioli*, *Asters*, *Chrysanthemums*, and many others, with stiff stalks to support them. In a general way, many of the flowers will last only one day, and I change the whole of them three or four times a week, but make a rule of looking the stands over every other morning. The sand should not be so saturated that the flower stems will not stand erect in it, or they are apt to fall when the stands are removed from the table.—WILLIAM PLESTER, *Elsenhall Hall Gardens.*—(The Gardener.)

### NOTES AND GLEANINGS.

MR. CHARLES McDONALD, gardener to Colonel Tighe, of Woodstock Park, Co. Kilkenny, has been appointed to the Phoenix Park, Dublin, and he has been succeeded by Mr. Murdoch Matheson, late gardener to the Marquis of Exeter at Burghley. This is a fitting rise in the career of one who has distinguished himself in every step he has made in his profession. Trained in the gardens at Haddo House, he conducted himself as to attract the attention of the great Earl of Aberdeen, who presented him on his leaving with a donation of books, with the following inscription:—"Presented to Chas. McDonald, for diligence in self-improvement, from the Earl of Aberdeen." Thence he went to Dalkeith, under Mr. McIntosh; and then to Trentham, under Mr. Fleming. We next find him at Durobin, exercising his skill in landscape gardening, under the late Duchess of Sutherland, so successfully as to elicit from one of our greatest artists the expression, that the grounds laid out by Mr. McDonald around the dairy at Durobin, were "the most promising piece of landscape practice he had seen." It adds much to the high estimation in which Col. and Lady Louisa Tighe are already held, to know that both of them have sacrificed so much of their own interest in benefiting their valued servant, as to use their utmost influence to procure him the appointment he has now received.

### PORTABLE FRAME FOR STRIKING CUTTINGS, &c.

WE have just perfected a little frame which will be of great advantage to amateurs who have no glass structure, and to parties who have only a small conservatory. It is the Waltonian case worked out to a successful issue. In the Waltonian



case there was an ugly chimney in the centre, and there was always a difficulty in keeping the source of heat burning. We have completely done away with the chimney, and the lamp burns freely. The heat in the case can be raised to almost any point, and can be kept down to almost any point. The case can be worked with gas or oil. We have had it working at our shop for a fortnight, during which we have raised seeds, and now have a batch of cuttings striking.—BARR & SUDEN.

[We have seen it in operation, and recommend it to be called

"Barr & Sugden's Lamp-heated Propagating Case." It is well adapted not only for striking cuttings, but for raising seedlings. It is a simple, inexpensive, long-enduring structure, made of galvanised iron, and will germinate the most stubborn seeds as

well as the most difficult and delicate. Messrs. Barr & Sugden manufacture these cases in three sizes, but they may be made ornamental, and used for Ferns or other plants. We add woodcuts of the plain and the ornamental.—Eds.



## WORK FOR THE WEEK.

### KITCHEN GARDEN.

THE advantage of applying manure in a liquid state to kitchen-garden crops is so great that it becomes an important duty to see that none is wasted. There should always be a tank in the dungyard or frame ground, conveniently placed for the water-barrow, and into this tank should be conducted all the drainage of hotbeds, heaps of fermenting dung, green refuse, &c. The liquid will form an excellent dressing for Cauliflowers and Celery, also for pouring over Sea-kale and Asparagus beds, the ground in which Artichokes are growing, and a diluted portion over the Pea ground in dry weather; indeed, almost any kind of crop will be benefited by it when in a growing state. Let a sowing of the winter and spring *Broccoli* be made forthwith. *Cape Broccoli* and *Cauliflower* for Michaelmas may, however, be sown a week or two later. See that plenty of *Kale*, *Savoy*s, *Brussels Sprouts*, *Leeks*, *Scorzonera*, *Salsify*, *Beet*, &c., be sown without delay. Continue successions of *Horn Carrots*; indeed, sow a bed every month from January to September. This is the best way to be independent of the grub. *Ridge Cucumbers* should be brought forward, also *Tomatoes* and *Vegetable Marrows*. As soon as the young *Asparagus* is from 3 to 6 inches high, let the new plantation be made. As soon as the principal crops are in the ground, and the main quarters have their supply of dung wheeled on

to serve for the season, proceed to make good any part of the Box edgings not in order, by taking the whole up and replanting, or filling up any blanks. Thrift and similar edgings require to be taken up and replanted every two or three years. Although Box edgings look neat, and help to set off the kitchen garden, yet from their harbouring slugs, &c., and the annual repair which, even with the best care, Box requires, stone or earthenware edgings are decidedly preferable. Though more expensive at first, they will in a few years repay the additional outlay, besides the appearance of stability which they give to the walks. When the edgings are put in order, turn over or regravell the walks, and after rain let them be well rolled till they again become firm; the garden will then present throughout the season a clean, well-regulated appearance.

### FRUIT GARDEN.

The late frosts will have their effect upon the Peaches and Apricots where adequate protection has not been afforded; the same cause will also have retarded the growth, so that the budding recommended last week will hardly have begun, but it should now be proceeded with. This should never be the work of a second person, but should be put into the hands of one who thoroughly understands the principle on which he works. The most expeditious way is to commence from the centre, and take every shoot as it comes, not leaving it till all

is done that is required at that time; a quick, practised eye accustomed to the work will see in a moment what to do, so that there need be no hesitation. If any of the early *Plams* are expanding their blooms, it would be well if a little protection could be afforded them at night for a short time.

#### FLOWER GARDEN.

In the following remarks on the most select plants for grouping, I shall only notice a few, leaving those more commonly grown out of the question. Taking the *Phlox*, which I would like to see more frequently, *Omiflora magna* makes a fine white bed, blooming throughout the season; and from the many varieties raised from Drummond's and the late-blooming herbaceous sorts a selection may be made of some beautiful kinds. Among *Salvias*, *S. patens* will be always in request for its decided colour, and *S. cerulea compacta*, though less showy, is, perhaps, as useful. Most of the varieties of *Pentstemon gentianoides* are handsome; *Buckii*, *Cloverii*, and *formosus* being especially so, while *P. speciosus* is a good pale blue species. *Cuphea platycentra* and *strigillosa splendens* are neat, compact plants, more adapted for baskets than beds. *Enthales micropylla* is a useful plant for vases or large baskets, from its diffuse habit. *Linum flavum*, when properly managed and covered with its golden yellow blossoms, is a fine object. *Oxalis floribunda* makes a pretty edging or small bed, and *O. Bowiei* is very showy throughout the autumn, and easily managed. *Snapdragons* are now so numerous that names are out of the question; many of them form showy beds. The same may be said of *Astrumersias*, of which the Ghent seedlings are easily managed, and are distinct and showy. *Dianthus fulgens*, a rich crimson, is fine, and there are others equally good, not forgetting *D. superbus*, which should always be grown for its fragrance. *Delphinium Barlowii* and *grandiflorum*, when pegged down closely, make good plants for deep blue beds. *Didytra spectabilis* must not be forgotten, for when planted out it is one of the gayest plants grown, blooming freely throughout the season. *Kalosanthes coccinea*, and others, are unequalled for brilliancy of colour, and are adapted for beds or vases, where they are very striking. *Hollyhocks* which have been recently planted will require a fair supply of water should the dry weather continue. Cuttings may be taken from old plants; these strike readily now if inserted firmly in river sand and planted in a shady border. We should allow three shoots to remain for blooming. *Auricularia* require just now very great attention; if for exhibition, carefully inspect the growing truss. Some little judgment will be requisite in thinning out the tips, so as to retain those which will expand together. Avoid by all means possible the chance of having the stems drawn; abundant air will be necessary, and an occasional watering of very weak liquid manure, made with sheep's dung, will be found beneficial. *Carnations* and *Picotees* being all potted, insert forthwith the sticks to which they are to be attached.

#### GREENHOUSE AND CONSERVATORY.

Proceed with the staking and tying-out of plants requiring such assistance; but if former directions are carried out relative to growing plants with short-jointed wood, much in the way of stakes may be dispensed with, although some will be necessary to give the plant its desired shape, but on no account use more than will effect that purpose. Turn each plant frequently round, that it may not become one-sided. Hardwooded plants should be frequently examined in respect to their drainage. At this season many of them, as most of the New Holland plants, are either in bloom or approaching that state, and will, consequently, require a larger quantity of water, more especially any large specimens not shifted since last season; it will be obvious that if the drainage is imperfect, or if the entire mass of roots is not equally moistened, the death of the plant must soon occur: hence the necessity of paying attention to this important point. The more valuable, because the more delicate, plants are the first to suffer.

#### STOVE.

The greatest care will be requisite to prevent softwooded stove plants from drawing; as these will now be making rapid growth they should have a large share of light, using shade only in the middle of the day. Some of those potted early may now require a second shift; in this, however, the cultivator must be guided by the requirements for which the plant is grown. Take every opportunity of keeping down insects by fumigation and the active use of the syringe, but in this carefully avoid injuring the newly formed foliage of large-leaved plants. The cuttings which it was previously advised should be struck for a stock of winter-flowering plants, will now require

potting-off. As it is not desirable these should be grown to a large size, keep them rather short of pot room. A hot-water pit will answer best for growing these and similar plants. They can be placed close to the glass, and by a little attention will by the autumn form stout, bushy plants with well-ripened wood, and may then be brought into bloom at pleasure. See that the growing *Orchids* have abundance of atmospheric moisture, with a liberal circulation of air early in the morning, shutting up closely early in the day, and taking care to use moderation in the use of fire heat, in order that a pure atmosphere may be enclosed for the night. Growing *Dendrobiums* will now require liberal supplies of water, and air-plants on blocks frequent syringings.—W. KEANE.

## DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

*Potatoes*.—Planted more as stated last week, and never were they in better order; the bulk of the *Potatoes* were just beginning to move, so we may expect them to come up strongly. The weather has become colder again, and a falling barometer leads us to expect rain ere long. It will be very acceptable for the healthy germination of all seeds, for, though there is plenty of moisture beneath, the surface in many cases is dust-dry. We are sometimes half inclined to envy the farmers, who, in such fine suitable weather, can put in the bulk of their seeds whilst gardeners must sow often to have regular successions.

*Peas*.—We stated that we lost by mice and rats most of those intended for our first crop out of doors, as we did not red-lead them before sowing. We have a lot in little boxes, which we hope to plant out in the beginning of the week and to stake at once. These we shall find useful to come in after those in pots and sown in borders in the orchard house, as the first-sown *Peas* out of doors this spring are only now becoming visible. Nothing could more truly indicate the coldness of the ground, as we never recollect of seeds remaining under ground so long. They are growing well now. Beans that have been in the ground six weeks have scarcely made any progress except downwards, so we shall transplant some Broad Beans also. With so many enemies, we find there is great trouble and but moderate success with those Beans sown in autumn.

*Dwarf Kidney Beans*.—Now is a good time to sow a lot in 4 or 5-inch pots where there is a little heat, to be turned out afterwards in a sheltered place. These will yield good gatherings long before those sown in the open ground. It is hardly worth while sowing them out of doors until the end of the month, but we have had fine early crops under hand-lights.

*Globe Artichokes*.—Removed the long litter packed about these, and forked over and manured the ground. The stools are all safe, a matter of importance where *Artichokes* are much sought for. Good-sized pieces taken off now, and planted in rich, well-stirred soil, will continue the produce fully a month later in the autumn.

*Sea-kale*.—A good portion of that which had been taken up to be forced has been again transferred to the soil, and it wrought beautifully in this dry weather. All the tops and crowns that are good are planted by themselves in pieces about 6 inches long, being set in rows 2 feet apart, and about 6 inches from each other in the rows. All the smaller pieces of roots, and any parts left in the ground, as large as, or even smaller than one's little finger, are also sized and cut into pieces about 6 inches long, and firmly planted, leaving the upper end just level with the surface of the ground. Some ashes are then strewn along the rows to keep slugs and vermin from the fresh-cut tops. Plenty of buds generally come from the tops of these pieces, which may need a little thinning in summer. Some with fair crowns will make good-sized plants for taking up and forcing after Christmas, and the smallest will do well after they have stood two summers. Every person who can command the ground for summer growth may easily have *Sea-kale* in winter, and that without purchasing fresh plants, as a great portion of the plants forced will come in useful again when treated as above described. A good succession may also be obtained by sowing a little bed every year, but we know hardly any vegetable so subject to the attacks of the fly when the plants are in the seed bed, and just a little older. Wood ashes and a thin layer of spruce branches we have found the best means of keeping the fly at bay. When the roots are cut up and planted as above, the fly cannot touch them, and a small cone of ashes keeps the tops sound. Put a number of common pots, 10 or more inches in diameter, over some good

heads, and a little rough hay round the insides of the pots, which would alike moderate heat and cold. No litter is intended to be placed round these. We have several beds which we intended covering with, say, 7 inches of ashes, but we are short of the latter just now. Sea-kale out of doors intended to be cut during the spring, cannot be covered too soon, as if it attain any size it takes a long time to turn it from its natural colour to white.

**Chubbarb.**—There is less difficulty with seedlings of this, and in fine soil seedlings soon become strong. The roots taken up and forced need not, however, be lost, as if placed in a sheltered corner, watered, and covered up with litter, they will soon show where their buds are, and may then be divided in pieces, and planted out again. These may generally be raised as large fine plants after they have had two summers' growth. The worst of taking up Asparagus is, that nothing can be made of the old roots as respects future growth.

#### FRUIT GARDEN.

We finished most of the pruning. We fear we shall have to wash our bush Apple trees with lime and soot, as the birds have begun on them. The buds are swelling fast and looking well. Peach trees are in full bloom in the latest orchard house; the blossoms of Plums are all open, and the buds of Cherries are swelling fast but not yet open. A few Plums in the earliest house have a little air opposite them all night. A close atmosphere will not suit them or Apricots long when in bloom. The buds of Peach and Apricot trees out of doors are opening fast. As yet we have used no covering. We have less faith in covering if it do not keep out heavy rains. Such a covering we have always found useful.

Strawberries are improved by gathering the fruit when the soil is comparatively dry—that is, before watering. In successions, if the outer leaves grow rather upright, more strength will be thrown into the trusses if these leaves be bent down a little. We have some now in a pit heated by hot water, and though we throw a mat over the glass at night, there is rather too much condensed moisture on the leaves and bloom in the morning, even though a little air be given all night. Such an appearance seldom shows itself much in a shelf in a fair-sized house. Even the mat does not seem to arrest the condensation of moisture. In fine, sunny weather it matters but little, but in dull weather the flooding with dewdrops is rather inconvenient. Regulated, tied, and attended to Vines. Those in the late house are breaking, though we shaded the roof a little, and did the same as respects the orchard houses, where the light and heat were very powerful. The Vines are also moving in the orchard house, that which we shut up in the afternoon.

#### ORNAMENTAL DEPARTMENT.

Outside we have been busy planting the last of the Spruce. As the trees had not moved we think they will succeed, though we would rather have planted them in November. Planted and sowed lots of Gorse for cover. Perhaps the beginning of April is about the best time for this work. In sowing on rather light land it is a good plan to draw drills, say fully 3 inches deep, cover the seed, and leave the drills unfilled. This will greatly protect the plants the first winter, and small soil falling down will not hurt them. When a large space is sown by drill, it is a good plan to drill Barley or Buckwheat thinly between the rows, as what the pheasants, &c., leave will greatly protect the plants the first season, when they most need it. It is of little use to plant or sow if the ground is not netted with wire netting of a mesh so small that neither young rabbits nor hares can creep through it, as they will leave almost everything to nibble the young Gorse. Where netting is not resorted to, these intruders must be kept at a distance, or you may wait long for a cover.

Rolled the lawn, and ere long will give the walks a renovated appearance; as yet few weeds appear on them. Pretty well finished pruning Roses, as all vegetation is late this season. Many of our permanent edgings to beds have become ragged within these four weeks, going to where they stood the rest of the winter well.

Trees and shrubs transplanted would have been much benefited by a daily syringing overhead in the bright sunny days, but these days have also to tell on our water supply, so that we shall be glad to see a warm plentiful rain. Those who live near rivers and streams can form no idea of the schemes that have to be resorted to to save water in some gardens, and especially where sufficient means have not been adopted to save for future use the rainfall. With such means used, few places need be without the necessary supply. We know of some large building operations shortly to be commenced, and

if the contractors have made their calculations without reckoning on the supply of water, it will be next to ruinous to them unless we have a moist summer to fill the pools and ponds, otherwise they would have to go five miles for water—a serious thing where a large quantity of mortar is to be made.

**Earth Pits.**—These, as yet, are comparatively empty; the press of other matters and the cold nights have prevented us turning out many plants for the flower garden where they would remain at least until the 20th of May. Next week we hope to turn out a lot of Calceolarias, which are now very thick in the beds in which they were struck. They have been exposed every day to harden them. In addition to what was said last week, we may instance that in that bed of Calceolarias there are three pieces of a great favourite of ours—*Anrea floribunda*, and at a considerable distance from each other. The mice have left the others almost untouched, but they have found out the three pieces of our favourite, and stung it them well in, so that we shall be obliged to give them a little better treatment than the rest to bring them round by planting time. We heard lately from a gardener that his crop of early Strawberries had been cut over and left in heaps in the pots. The mice have not as yet done much damage to our fruit, but they woefully maltreated our plants, eating out the buds of hundreds. The other day at noon we saw a rat come out of the opening from a slid sash of a Peach house, and scamper along the ridge of the house with a green Peach in his mouth, not the first by a great many, we believe, he had taken in the same way. Many years ago, noticing a run in the house, we raised a stone path, and found in a heap we forget now how many dozen Peaches just stoning, and every one had been so carefully carried that there was not a single mark on the fruit. We should think that even the rats must have been "hard up" to use such a store.

**Calceas.**—Dressed over those done blooming. When they begin to grow, if a few shoots push strongly and prominently, these should be stopped back so as to make two other shoots instead of one, and that will cause the others to grow freely and regularly all over. A little additional heat now, will ensure early-blooming plants next season with but little trouble.

**Camellias.**—Removed some of the earliest to a vinery, where they will have a little shade to help to make their wood and set their buds, and then they will flower early in a greenhouse. The help they most prize should be given just as they finish blooming.

**Heaths.**—The winter-blooming kinds of these should be cut back, and kept in a closer and warmer place until they break freely, when they must have more light and air. The same may be said of

**Epacris** that bloomed early, only they will stand a little more heat. In pruning back it is well to have a little of last year's wood, as they do not break freely from older wood, and after cutting back it is well to let the plants stand still for ten days or so in the same temperature as they bloomed in. Then a few degrees more heat and a moister atmosphere will cause them to break freely, and when growth has progressed the chief points are first to encourage growth in summer, as in a cold pit, and then to ripen that growth, with full exposure to sun in the autumn months.

We top-dressed Pelargoniums, tied them out, and fresh potted them.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending April 12th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . 6	30.074	29.967	66	22	43	40	S.	.00
Thurs. . 7	29.981	29.761	67	29	47	41	S.W.	.09
Fri. . . 8	29.952	29.494	66	35	47	42	S.	.10
Sat. . . 9	29.445	29.301	56	35	45	42	S.W.	.13
Sun. . . 10	29.820	29.732	55	27	46	43	W.	.02
Mon. . . 11	30.051	29.620	60	24	43	41	W.	.09
Tues. . 12	30.037	30.069	60	36	45	43	W.	.04
Mean..	29.875	29.776	61.43	29.71	45.14	42.00	..	.114

6.—Frosty fog; very fine; clear and very fine.

7.—Very fine; exceedingly fine; clear at night.

8.—Very fine; clear and fine; fine, twilight.

9.—Overcast; cloudy, slight rain; cloudy, cold wind.

10.—Cloudy; showery; hail; cloudy and cold.

11.—Fine but cloudy; fine; clear and fine.

12.—Very fine; cloudy but fine; clear at night.

## TRADE CATALOGUES RECEIVED.

Bell & Thorpe, Paddock Nurseries, Stratford-upon-Avon.—*General Catalogue of Plants.*

Child & Lorrain, 49, Darley Street, Bradford, and Bradford Nurseries, Shipley.—*Catalogue of Agricultural Seeds.*

## TO CORRESPONDENTS.

Being published in time for transmission by the Thursday morning mails, the JOURNAL OF HORTICULTURE should, with but few exceptions, be delivered on the same day in all parts of the country. If there is any delay, let our readers apply to the nearest railway bookstall, and by paying their subscriptions in advance their copies will be regularly supplied. If country booksellers cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.

We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

N.B.—Many questions must remain unanswered until next week.

AQUARIUM (R. C.).—Mr. J. Caven Fox, Arcades, Royal Horticultural Gardens, South Kensington, will give you the information.

ADDRESS (J. W. Manwood).—The address you require is 61, York Terrace, Regent's Park.

DELACHAMPEA ROZELIANA (Constant Reader).—You may obtain it from any one of the following nurseries—Mr. B. S. Road, Chelsea; Messrs. Veitch, King's Road, Chelsea; Mr. Williams, Victoria Nursery, Upper Holloway.

MUSHROOM CULTURE (Mushroom).—If you enclose five postage stamps with your address, and order "The Kitchen Garden Manual," it will be sent to you post free. It contains the information you need.

MANGOLD WURZEL (E. W.).—This, or Mangold Wurzel, is the correct mode of spelling. Mangold is the German for Beet, and Wurzel for root. The book you mention could be obtained through Messrs. Sampson, Low, and Co., Booksellers, Fleet Street.

CYCLAMEN SEEDLINGS (J. J. Jarrold).—When they have made two or three leaves, pot them off singly into small pots, and in summer remove them to a cold frame or to the open air, shaded from the sun. Pot as may be necessary into larger pots, and take in doors at the end of September, placing the plants on a shelf in a house with a temperature of 45°; and with due supplies of water, and putting as required, you may probably flower them next spring. In summer, pot them in new soil, and summer, potting them when they begin to grow. They will flower in autumn, winter, or spring, according to the sort. In potting cover the corm with soil. A little old cow dung may be mixed with the soil. Good drainage should be given.

FLOWER BED ARRANGEMENT (R. Clarke).—If you send us a plan of the beds, and how you propose to plant them, we will point out any errors or improvements that we can. We cannot originate the planting for any one.

NEW DASILIAS (Amateur).—Alice Gair, Aristides, Provost, Tolson d'Or, Annie Neville, Emperor, Indian Child, Memorial, Mrs. Brunton, Unique, James Hunter, and Head Master. These are all kinds sent out in 1869 and 1870. The latter, of course, are expensive.

CARNATION SHOOTS EATEN (Norus Anteus).—We think earthworms are not the cause of the mischief, and though you cannot but find them, nevertheless their slugs are your enemies. Destroy the plants with soot—it will drive away the slugs, and dust with lime occasionally. Soot is a good manure.

OCTOBER GROWING (Item).—We think with you that something must be wrong besides the heat of the hotbed, as, after this month, linings of grass keep up a sufficient heat. Have you the "Garden Manual"? It contains instructions for Cucumber culture, and may be had post free from our office for twenty postage stamps.

DELPHINIUM FROSTBITE (An Experienced).—The only difficulty with the Delphinium is to see that the seed is not dried up after germination has taken place; hence, if sown out of doors, a little shade may be given until the seedlings appear. We sowed last year in a little box in a cold pit, and the seedlings came up like Mustard and Cress. We cannot well account for the want of success, except by the reason given above. The flower garden will look well, especially if you can look down upon it. Your cutting 6, 7, 8, 9 will be an improvement. We should edge all these with Cerastium, and then you can edge 2, 3, 4, 5 with Lobelia, and plant the rest with Gold in Claret, Mrs. Pollock, &c. The best Calceolaria to suit Stella would be Apenninica; the next best, and strong-growing, would be Aurantiiflora.

BOXES FOR GREENHOUSE CLIMBERS (C. H.).—We do not think you could have anything better than slate for your boxes for climbers. From 18 to 24 inches square, and as much in depth, would be large enough. Wooden boxes of a similar size would last many years, and they might be painted, and well sanded outside when the paint was fresh, so as to resemble stone, but they would not be so lasting as slate. Slate could be painted and sanded in the same way, if deemed desirable.

STRAWBERRY—CYRAMARIA (Stolas).—The berry was smashed. The fruit probably is deficient in flavour, as, though ripe, you "never let them get dry." The Cyramaria are pretty, but many better are in the florists' lists.

ERRATUM.—In page 300, fourth line from bottom of second column, for "will" read "pot."

WORMS IN ORCHARD-HOUSE POTS (T. Matthews).—Worms will injure

the roots of your pot plants by making the soil loose about them. You can easily destroy worms by watering with clear blue water. Throw a spade of quicklime into thirty or forty gallons of water, stir it well, and if left a night and a day it will be quite clear, and then use the liquid.

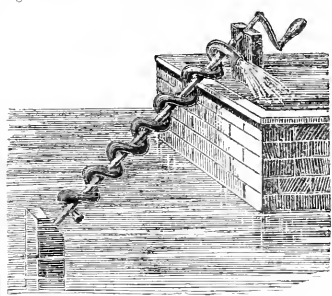
GLAZING WITHOUT PUTTY (S. Shaw).—From what you state we hardly know whether your roof is very steep or very flat, as people speak of angles so differently. If steep, there will be no danger from drip. If the slope is very flat, like that of a common frame, there will be danger if the glass be not well packed beneath. The grooving plan is no doubt good, but we cannot speak from our own experience. We know that placing the squares edge to edge without laps will not cause drip, but the grooves must be deep enough to allow of expansion laterally.

GLASS OVER A BORDER (H. C.).—You can cover such a border in the way proposed; a lean-to roof and an upright front would be the cheapest. The best plan would be to have an upright front 6 feet high, and then a low hipped or a span roof from the back wall, and front glass. The Figs will succeed best in the Vine divisions.

BOCCONILLA SPECTABILIS NOT FLOWERING (J. L.).—For this plant to do well it should be planted out in a border of light turfy loam, not very deep, wide, nor long; 4 feet long, 2 feet wide, and 2 feet deep, will be sufficient. To this space its roots ought to be confined. Good drainage must be provided, and then fill with light turfy loam chopped up, adding about a third of leaf-soil, and a fourth of sharp sand. It is well to have the border near the hot-water pipes, so that it may be warm and dry in autumn and early in winter. We should turn out the plant at once, and give it every encouragement to grow up to September, then keep it dry about a third of leaf-soil, and a fourth of sharp sand. Continue this treatment up to the following February, and if the plant do not flower then, gradually moisten the soil, and from March to the end of summer give it a moist growing heat; then keep the plant dry in autumn and early in winter, and it may flower throughout the winter and early in spring. Though water is to be withheld in autumn and winter, it must not be to the extent of causing the wood to shrivel, and yet the foliage may slightly transpire near the glass, the nearer the better, if the leaves do not actually touch. It will not bloom on the trellis, or but poorly.

MEDILLIA MAGNIFICA NOT FLOWERING (Item).—If it do not show flower by May, pot in a compost of two-fifths fibrous sandy peat, one-fifth light turfy loam, one-fifth leaf soil, and one-fifth of silver sand, and chum out the roots of a pen to that of a hazel nut, making walls not too stiff. In potting, remove the old soil as far as it can be done without injury to the fibres, drain well, pot rather firmly, but not very tightly, and give a good but not excessive shift. Pinch in a gentle hotbed, and water sparingly, but keep the soil moist until the roots are working freely in the fresh soil, then water copiously. To insure a good growth a moist, brisk heat is necessary, and when the flowering is ceasing, keep the plant dry, though watering to keep the foliage fresh, and expose it fully to light and air. It ought to flower next year.

RAISING WATER (Aqueduct).—As you object to having a pump for raising the water into the cistern, you might employ the "Archimedean Snail," which might be 80



feet, and is an inclined axle turned by a winch. A tube or pipe is twisted spirally round the axle, the angle of twist so arranged when turned that the water flows upwards. The spirals on the side shown are inclined to the right, and the

water, therefore, flows in that direction. The axle must be of the length of the height to which the water has to be raised, inclined at an angle of 30°.—(English Mechanic.)

FUCUS, PELAGONIA, and CLIMBER FERN FOR A GREENHOUSE (Polydora).—Prince Albert, dark; and Rose of Castile, light, are two good Fucus for trelliswork or for ferns. Zonal Pelargoniums, General Pelissier and Clipper are good scabers, free-growing and free blooming. A Climbing Fern is Lygodium aculeatus; it grows freely, is very elegant, and ought to be in every collection.

CAMELLIA JENNY LIND (Lace and Learn).—The description you give of your plant and flower leads us to the conclusion that it is correctly named. You would, we think, be acting judiciously to have it grafted, especially as it is so fine a plant, and, as you say, so good a do-it companion for Lady Hume's Blush, one of the finest of all Camellias for cut blooms, but which, unlike Jenny Lind, is not a cupped flower, being more prominent in the centre. There is no work on the cross-breeding of plants.

CYCLAMEN TREATMENT (E. B. B.).—The leaves sent are certainly very good. Why should you despair? Try again. If the plants are varieties of Cyclamen persicum keep them in a slightly shaded part of the greenhouse, but on a shelf and near the glass, and water them so as to keep the leaves fresh. In May place in a cold frame on an east border, watering as required, and in June remove the lights, giving no more water than enough to keep the soil moist, or rather dry than otherwise, but any rain that may fall do the plants good. At the end of August or the beginning of September, the plants will begin to grow, but them, but without disturbing the roots, though any loose soil may be removed, and



of the winter I dispensed with the two little Bantams, and one of my Hamburgh hens having died, my stock at the commencement of the ensuing year consisted of fourteen head. My debit and credit account stood thus:—

Dr.	£ s. d.	Cr.	£ s. d.
8—Stock of poultry at beginning of year valued at.....	0 12 0	11 Chickens killed, at 1s. 6d. each.....	0 16 6
10 lbs. of mait.....	0 3 0	117 Eggs at fifteen to 1s. less forty-five used for setting.....	3 15 0
120 lbs. of barley.....	0 10 0	14—Stock of poultry in hand at end of year, valued at 1s. 6d. each.....	1 10 0
Oatmeal.....	0 5 0		
	1 9 6		
Profit.....	4 3 0		
	£5 12 6		£5 12 6

This result looks most satisfactory on paper, and is fully accounted for in this way. The very small quantity of food bought is owing to the fowls being principally fed on scraps from the house (given warm in winter). In any house of six or seven people there will always be scraps which even the most economical housewife could not put into bread-puddings, and yet are too good to degrade indiscriminately to the swill-tub. Though I have annually increased my stock far beyond the supplies of scraps, and have each year been able to show some profit, however small, I have never since been able to reach so high a rate of interest on my outlay as this, which you will see is nearly 300 per cent. I assuredly never had more pleasure and interest in each bird, individually, than I had then; but next year must be left till next week.—W. W. D. H.

### POULTRY-SHOW GAMBLING.

A highly objectionable feature in poultry shows has of late unfortunately rapidly developed itself, and it is at the same time one that I believe will prove more difficult to eradicate than has been the case with most former failings. I allude to heavy betting on the awards. This practice most commonly leads by the hand its own twin sister—viz., borrowing birds, for very high sums, to be temporarily exhibited by the gamster as his own absolute property. This, it must not be lost sight of, is not done with the single view of securing the well-known legitimate honours, whatever they may be, publicly offered in the committee's prize schedule, for such an exhibitor cares nothing at all for poultry itself, but simply to ensure the certain success of winning other far larger amounts of money staked by himself on the issue. This pretty clearly accounts for circumstances that have again and again occurred, and which at first sight appeared paradoxical, where several pounds more than the actual value of the show prize have been freely given for the mere temporary loan of a pen of birds wherewith to win it; or, as is sometimes the case, the money is absolutely paid beforehand, and received under the specified arrangement between both of the contracting parties, "whether the pen of birds win or not," a stipulation on the part of the real owner made to ensure a certainty of payment whatever may be the ultimate decision.

This to my mind assumes far more of the character of a gambling transaction than of honourable emulation and laudable competition—the only and original intention of the first promoters of our public poultry shows. Those individuals who are at all intimate with these matters full well know that, as a rule, the depression or exultation consequent on the decisions at a poultry exhibition among those most interested is influenced in a very considerable degree by the relative amount of loss or gain involved in the awards; and my own personal experience proves that heavy betting as invariably adds bile to defeat—in short, makes acrimony the order of the day. Again, not unfrequently the sudden disappointment gives rapid birth to expressions that, even by the parties using them, would in cooler moments be repudiated altogether. All this adds its share to much that cannot be otherwise than unseemly in poultry shows, for, in case of an adverse though correct decision, judges receive, from the influences referred to, much less consideration; or efforts may be attempted beforehand, as a solitary instance or two of exposure have already proved, to propitiate arbitrators, and thus covertly reduce them from the path of rectitude and duty. As to the act of letting itself, I presume there ever has been, and always will be, persons who look upon the practice as one in which no other individual has any right to interfere, for I was once blankly told, "Mr. Hewitt, let those who like to bet alone—that award of yours has lost me £20."

I will here say, were it not for my own heartfelt conviction

that poultry-culture (which is one of the most pleasurable pursuits of country life, combined as it is with those happy annual reunions at local meetings, where so many respected poultry-breeders look anxiously forward with commendable emulation to test against all comers the superiority of their carefully reared stock), is thus absolutely imperilled by receiving a heavy blow affecting vitality itself, I would never have broached the subject at all.

Perhaps, however, by the united action of those amateurs who may consider, as I do, that the "professional betting man" is a most undesirable adjunct to a poultry exhibition, something might be done that would hold in check a practice, that if much confirmed would most probably tend in a very considerable degree to drive away altogether from the pursuit many of the most consistent and conscientious of our poultry amateurs. Few of your readers, I think, will question that continuous betting on poultry prize-winners, totally irrespective of any personal interest in poultry itself, but with the sole view of gaining money, is a dark feature, and one for which I willingly confess my own inability to suggest an effective remedy; still I hope that by some of the many practical individuals who compose so important a section of the best supporters of our poultry shows, there may be proposed some restrictive measure which at least will hold this unlooked-for plague-spot in comparative abeyance.—EDWARD HEWITT.

### TRIMMING.

UNQUESTIONABLE committees of poultry shows, in justice to honest exhibitors and the public in general (as many specimens exhibited are purchased by complete novices), ought unhesitatingly to discontinue the corrupt system of trimming. Some committees maintain that stringent regulations are calculated to limit the number of entries—perhaps so, on the part of dishonest exhibitors; but justice ought to govern the actions of committees as well as profit, and honest exhibitors and intending purchasers are entitled to some consideration. If those committees are under the impression that stringent regulations are likely to militate against the success of their exhibitions in a pecuniary point of view, by all means let them discontinue holding them; but I submit that they have no occasion to apprehend any diminution in the number of entries, for, although fraudulent exhibitors might decline to enter, the entries of honest exhibitors would become more numerous in proportion.

In order to detect and punish cases of trimming, I would suggest to committees that they employ to receive and pen specimens such reliable persons as are conversant with the points of poultry, and it be an instruction to those persons to carefully scrutinise the birds, and report to the judges (whose duties in consequence would become less onerous) any cases of trimming they may have discovered; and no doubt between the vigilance of the judges and scrutineers, most cases of trimming would be detected. I would also suggest as a method of discouraging fraud and as a source of profit, that committees make it a binding condition in their forms of entry, that, in addition to prizes being withheld for trimming, all birds in the exhibition pronounced by the judges to have been tampered with shall become forfeited, and committees shall possess power to dispose of the same by private contract or public auction, and apply the proceeds of the sale in any manner they may elect. There should be no appeal from the decision of the judges, who should, I am convinced, be invested with more extended powers, especially such high-minded, competent, impartial, discriminating, and intelligent judges as Mr. Hewitt, for instance.

I trust my suggestions may be deemed worthy of the consideration of committees, who should be unanimous in the adoption of vigorous measures to check the reprehensible practice of trimming.—D. C. E. W.

I HAVE waited week after week since Mr. Hewitt's article against trimming, in the hope that one voice, at least, would be raised to bring forward what seems to me a most important objection to leniency in any case where trimming is discovered. All breeders of poultry know from bitter experience how surely defects, and particularly those of plumage, are transmitted. How serious, then, must be the consequences to many an honest fancier of "the abstraction of a body feather or two." For instance, I bought last season a very pretty showy Houdan cock, good in colour particularly, and my hopes were not less sanguine than those of the milkmaid in the fable. Alas! a



## OUR LETTER BOX

WEIGHT OF GAME BANTAMS (H. R. P.).—The smaller Bantams of all kinds are, the better they are considered; for Game we should try for a cock about 16 ozs., a hen 14 ozs.

**MANDARIN DUCKS** (*Idem*).—Mandarin Ducks should be kept in confinement. They are too valuable to be turned on large or open pieces of water. If, however, you do not mind the risk of their straying, or being injured or stolen, you need have no fear of their being delicate. They are as hardy as common wild ducks. The fittest place for them or Carolinas is on a small pond in a garden.

**SPANISH FOWL'S FACE DISEASED.** (W. B.).—Spanish fowls are subject to several disorders of the face. One springs from the eye, that is incurable, and consists of a hard malignant swelling under the white face, which after a time becomes red, and is attended with pain. The swelling of the face grows in rolls or ridges, and the inner part, where the skin is always in contact, becomes sore and weeps. Wherever the discharge runs, it turns the white face brown. This is curable. The face should be dried with linen, and the cracks treated with powdered alum.

**SHORTENING COCK'S SPURS (Poplar).**—There is little danger in its bleeding, and caustic will stop it. As a rule in these long spurs, two-thirds of the length are merely horn or dry bone, and bear cutting as easily as finger nails. We believe you can cut low enough to remove all that is necessary without causing it to bleed. You try to cut too much.

**HEN LAYING ON THE SITTING—KILLING HENS FOR TABLE.**—The hen is not really broody. A hen is not so when she is laying. You must not entrust her with eggs, especially in her present humor. Dorkings are excellent sitters, quite as good as Cochins. We do not believe she will hatch any, if they are her own eggs that appear in the nest. If you have a broody hen, you must not let her sit on eggs very prone to lay in a sitting hen's nest. Buckhens is largely used in France to feed poultry; we have tried it, and did not succeed in obtaining any good result. It is fattening and oily food, but birds do not like it. In many cases are only good entree under certain conditions. If you have a broody hen, you must not let her sit on eggs. If you want to kill a hen when she is naturally full of flesh and fat, just before she lays; she should then be killed empty of food, that she may keep long enough to become tender. In winter, and in cold weather, such a bird will keep in the night. In warm weather she will keep only a few days. As a rule, a hen will keep in the stock place in the stock pen, or in a pie such as we have often described.

**BREEDING DUCKING GAME FOWLS** (*An Amateur*).—Assuming you wish to be good and not related, we advise you to breed from Duckings on both sides. The Black Red is used when colours are failing, to best advantage, and chestnut patch, but it brings other colours that have to be bred out the same way, when fading fails in Schrights; it is necessary to breed from Black Red, and then, if you breed it only so much of the new colour is left as is worth the trouble. To breed to win and can follow our plan, we advise you to make two walks, as it is almost impossible to breed winning cocks and hens from the same parents. One bird of fresh blood will be a great help in one walk.

**BRABMA POOTRA VULTURE-POCKED (White).**—If it is only the appearance you object to, cut the cockcrow's feathers off close to the skin; they will not reappear till the moulting season. His produce will not be less, and he will inherit the defect. If you pull the feathers out they soon reappear, and it is putting useless labour on the bird to produce them.

**SILVER-SPANGLED HAMBURGS (T. O. I.).**—We have known instances of both Spangled and Pencilled Hamburgs sitting; but we do not advise you to trust to either, they are not to be depended upon.

**FEATHER-FATE.** *P. P.*—The cock's neck is picked bare by the hens. Remove him from their company and keep him in a rubbed place with compound sulphur ointment. It cannot be explained, but cocks seem to like the treatment, and will stand still while the hens pick their feathers. (*E. J.*)—Your fowls have begun feather-bating. It arises, we believe, from a heated system, and that is caused by over-feeding. We advise you to cut down your food, and must fast back on the vegetable diet of the Continent. Give them no more corn, and refuse vegetables. Where eggs only are wanted, a cock is unnecessary.

**BRAHMA COCKEREL FOR BREEDING (T. S. J.).**—He is neither suitable nor faultless. We would not accept him at a gift as a breeding bird. A falling comb and vulture hocks are among the worst faults a stock bird can have. Either would quite disqualify him in our opinion.

**BRAHMAS (T. Carver).**—About Light ask Mr. Pares; about Dark, Mr. T. Wright.

BONE DUST (*Brahma*).—All dealers in artificial manures sell it. The bones from your own table crushed very small would be equally useful to mix with poultry food.

**EGGS FOR SITTING** (*Constant Reader*).—Eggs a fortnight old are quite available for hatching. If the hens are not broody, place the eggs in dry bran, their small ends downwards, and they will be hatching for a week.

bran, their small ends downwards, and they will be hatchable for a week or ten days longer. The older the egg usually the weaker the chicken it produces.

GAPES (M. T. A.).—Give the chickens every morning a pill of camphor the size of a small pea.

**POINTS IN TURBITS (K. S. M.).**—1, Frill, large; 2, Beak, the shorter the better; 3, Eyes, large, of a black or hazel colour; 4, Head, broad; 5, Size of the bird, the smaller and more compact the better. The feathers at the back of the head should go up to a point. The Silvers rank about equal with Blues. If the Blues have Silver blood in them they rank higher.

POINTS IN AYLESBURY DUCKS (*Idem*).—Bill of a delicate pale flesh colour, perfectly free from black or dark marks. Colour pure white weight, the heavier the better.

FANTAILS DYING (*Clarence Sedgely*).—Try a thorough change of diet. The veins in the show poverty of blood and poor constitution, as they usually

attack sick or delicate birds. A little hempseed would not be amiss for a short time, as it would, if anything can, tempt a Pigeon to eat. The insects may be destroyed by dusting a little powdered sulphur among the feathers. A little paraffin oil poured where the Pigeons sit is said to destroy the insects in the floor. The bird did not want lowering by castor-oil, but strengthening by more nourishing food, such as Indian-corn.

**POINTS IN BEARD TUMBLERS** (*Idem*).—The beard is the point. It should not be a mere patch of white of any shape, or broken at the edge, and mixed with the body colour, but clearly defined from the lower unmanageable, and ending in a point. The flight feathers should also be white, as well as the whole tail, and the feathers of the rump, vent, and thighs, the rest of the body being of the other colour—yellow, blue, black, &c., as it may be.

WING DISEASE IN PIGEONS (*J. Bertois*).—Dress the place every other day with tincture of iodine, using a camel-hair brush.

**PARROT SELF-PLUCKED (Trotters).—**It is supposed to be to allay an itching of the skin, caused by the bird's having bones and other unnatural food given to it, and to the want of exercise. Fruit and other vegetable food only, and a shower bath of tepid water daily, are the best remedies. The water may be applied through the rose of a watering-pot.

CANARY MUTE SINCE MOULTING (J. J.). — The Goldfinch hen has nothing to do with the bird's silence. Give him a little hard-boiled egg chopped fine.

CANARY-BREATHING NOISILY (*Constant Reader*).—Keep from draughts and give a little bread and milk in addition to the other food. Discontinue the hemp, and add linseed.

LINNET MULE (*Randolph*).—We do not discern what information you need.

**CHLOROFORMING BEES.** *Of Beginners.*—Chloroform, so far as we have seen, is always more or less fatal to bees; we are, therefore, unable to state what quantity will suffice to stupefy a stock without either nearly or entirely destroying it.

**ARTIFICIAL SWARM (T. M. N.).**—The attempt to form an artificial swarm can, under the circumstances, scarcely end in anything but disappointment. The best mode of transferring a stock from a common to a frame hive was fully described in our number of the 32nd July last.

BEE FLOWERS (*Amateur*).—Borage, mignonette, and *Nepeta Mussinii* put fields of clover, and furze, heath, lime trees, &c., are the most efficient honey-yielders.

GRITS OR GROATS (*Inquirer*).—These are oats with the outer skin taken off. The words are in all our dictionaries.

## COVENT GARDEN MARKET.—APRIL 13.

SCARCELY so good a demand has been experienced the last few days and consequently some reduction has had to be submitted to in article requiring a quick sale, such as those which are raised under glass, and at this particular season we cannot expect any great demand. Trade however, there is little doubt, will revive after the holidays. Foreign imports are again heavy. None but choice samples of old Potatoes suit the trade now.

FRUIT.

		s	d.	s	d.			s	d.	s	d.
Apples.....	4	sieve	3	6	to 6	Mulberries.....	quart	0	to 0	9	0
Apricots.....	doz.	0	0	0	0	Nectarines.....	doz.	0	0	0	0
Blackberries.....	doz.	0	0	0	0	Oranges.....	doz.	0	0	0	0
Chestnuts.....	bushel	10	0	20	0	Peaches.....	doz.	0	0	0	0
Currants.....	4	sieve	0	0	0	Pears, kitchen.....	doz.	4	0	0	0
Black.....	doz.	0	0	0	0	Pine-apples.....	doz.	4	0	0	0
Figs.....	doz.	0	0	0	0	Pine-apples.....	doz.	4	0	0	12
Filberts.....	lb.	0	0	0	0	Plums.....	4	sieve	0	0	0
Gobs.....	lb.	0	0	1	0	Quinces.....	doz.	0	0	0	0
Gourden.....	quart	0	0	0	0	Raspberries.....	doz.	0	0	0	0
Grapes, Hothouse.....	lb.	8	0	20	0	Strawberries.....	doz.	0	9	1	0
Lemons.....	100	0	0	10	0	Walnuts.....	bushel	10	0	0	16

## VEGETABLES.

VEGETABLES.				
	a.	d.	a.	d.
Artichokes.....doz.	3	0 to 5	Leeks.....bunch	0 4 to 0
Asparagus.....1/100	0	5 12 0	Lettuce.....doz.	1 0 1
Asparagus.....bushel	0	0 0 0	Onions.....doz.	0 0 0
Broad.....bushel	0	0 0 0	Mustard & Cress.....punchet	0 2 0
Beet, Red.....doz.	2	0 3 0	Onions.....bushel	8 6 5
Cabbage.....doz.	1	0 0 0	Parsley.....bunch	0 0 0
Brussels Sprouts.....sieve	0	0 0 0	Parsley.....sieve	3 6 5
Cabbage.....doz.	1	0 2 0	Parsnips.....doz.	0 9 1
Cauliflower.....doz.	3	0 0 0	Potatoes.....bushel	2 0 4
Carrots.....bunch	4	0 3 0	Potatoes.....doz.	5 6 0
Cauliflower.....doz.	3	0 0 0	Radish.....doz.	0 0 0
Cauliflower.....bushel	6	0 0 0	Rhubarb.....bunch	0 9 1
Celery.....doz.	3	0 0 0	Rhubarb.....bushel	0 0 0
Celery.....bunch	0	0 0 0	Sage.....bushel	0 0 0
Celery.....picking	0	0 0 0	Seakale.....bushel	2 0 3
Endive.....doz.	2	0 0 0	Shallots.....lb.	0 0 0
Endive.....bunch	0	0 0 0	Shallots.....doz.	0 0 0
Garlic.....lb.	0	0 0 0	Tomatoes.....doz.	0 0 0
Garlic.....lb.	0	0 0 0	Turnips.....bunch	0 4 0
Herbs.....bunch	0	0 0 0	Turnips.....doz.	0 0 0

## POULTRY MARKET.—APRIL 13.

WE have had rising prices during the week, and we have little reason to think there will be much change till the birds of this year come regularly. The weather has been so unpropitious, we look for scarcity for some time.

	s.	d.	s.	d.		s.	d.	s.	d.	
Large Fowls .....	4	6	to	5	0	Partridges .....	0	0	to	0
Smaller ditto .....	3	6	4	0	Guinea Fowls. ....	3	6	4	0	
Chickens .....	2	8	3	3	Pigeons .....	0	9	0	0	
Goslings .....	7	0	7	6	Hares .....	0	0	0	0	
Turkeys .....	0	0	0	0	Rabbits .....	1	4	1	0	
Ducklins .....	4	6	5	0	Wild ditto .....	0	8	0	0	

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	APRIL 21—27, 1870.	Average Temperature near London.			Rain in last 43 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock after Sun.		Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	h.	
21	Th	Meeting of Linnean Society, 8 P.M.	59.5	37.2	48.3	16	55	41	4	47	54	0	5	59	29	1	22	117		
22	F	Cambridge Easter Term begins.	59.3	37.4	48.2	22	53	4	6	7	46	1	8	10	4	1	35	118		
23	S		59.2	37.8	48.0	31	51	4	8	7	27	2	13	11	22	1	46	119		
24	Sun	1 SUNDAY AFTER EASTER.	58.8	35.0	47.4	17	49	4	10	7	59	2	20	0	23	1	54	114		
25	M	Meeting of Royal Geographical Society, 8.30 P.M.	59.6	37.2	48.4	17	47	4	11	7	26	3	27	1	21	2	8	115		
26	Tu		58.0	36.4	47.2	18	45	4	13	7	46	3	33	2	25	2	19	116		
27	W	Royal Botanic Society's Second Spring Show opens.	53.5	35.7	47.5	18	43	4	14	7	6	4	39	5	26	2	29	117		

From observations taken near London during the last forty-three years, the average day temperature of the week is 53.1°; and its night temperature 35.5°. The greatest heat was 82°, on the 27th, 1855; and the lowest cold 18°, on the 24th, 1851. The greatest fall of rain was 1.40 inch.

## THE PEACH AS AN ORNAMENTAL FLOWERING PLANT.



**PEACH blossom!** Is there anything more lovely? Everyone admires it. We are all charmed with it. Do we, however, make the most of it, or have it in that abundance or in that perfection which we might? We cultivate the Peach, it is true, abundantly, but for the fruit, not the flowers. Might we not, however, give these a little study? Are they not worthy? Our orchard houses are at this season one glorious mass of beautiful

pink in all its various shades, from light to deep rose—the most pleasing, the most enjoyable of spectacles to be found in a garden. Most probably it is owing to the repose the trees had last season from fruit bearing that we have such beautiful wood this season, and such an abundance of magnificent bloom. Never have I seen the blossoms more abundant, or larger, or finer, or more beautiful than this season; and thus I have been more than usually impressed with the importance of the Peach as an ornamental flowering plant.

"Peach blossom—very pretty! but the Peach is a fruit tree, not a flower," I hear some one say. Precisely, and its being so makes it all the more valuable. It gives it, as it were, a double value. The Peach is well worthy of being grown for the flower alone, independently of the fruit, and it is for this that I venture to write. Many of the varieties of Peaches have really most lovely flowers (all Peach flowers are not so) which are fit objects for the adornment for the gayest conservatory of flowers. The double-blossomed varieties are, of course, well known for their exceeding beauty, yet even they are not nearly so much cultivated as they really deserve to be, or so well as they might be, and, as a consequence, they do not present that charming appearance which better cultivation would produce. Care may be taken to force the plants into flower, but no care is taken, after they have ceased flowering, for the wellbeing of the wood for the succeeding year, and so the trees very soon become miserable objects.

Peaches, both the double and single-flowering varieties, are very easy of cultivation, and force well, so that a supply of their beautiful flowers may be maintained from Christmas to the present time—three months. The ordinary practice is to procure the young maiden plants from the nursery, pot them, and place them in the forcing house. The plants, if they do not die after such treatment, are grievously injured. To complete the injury, they are then put out in the cold at the back of a hedge, or in some similar position, to endure the frosts on the shoots which may have been formed, and to be left a prey to the ravages of all sorts of insect pests. The Peach, when grown for its flowers, should have the same care in its cultivation as when it is grown for the fruit. After flowering, the plants should be kept under glass, and the pinching of the shoots attended to, as well as keeping clear of insects, watering, pruning the wood, &c., as in ordinary practice, and then the results will be found well worth the trouble.

They may be grown in any form—bush, pyramid, or standard, and to any size. Planted out in the open borders the double-flowering Peach is also a very attractive and beautiful object when grown in the standard form. Here, also, rather more care is required, to make the best of it, than is usually given. It should be planted in good soil, so as to make the shoots grow strong, and they should then be pruned back, thus keeping up a supply of young wood upon which the flowers are produced.

What a pretty feature at some of our early spring exhibitions would be a bank of Peach trees in flower—the double, the single in all their various shades of colouring! The managers of our exhibitions want novelty and something attractive; surely here is a feature which would contrast favourably with many other subjects put before us. I would, therefore, suggest that prizes be offered for double-blossomed Peaches in flower, and for single-blossomed Peaches in flower.

In the double-blossomed class we have—1, The Double White; 2, The Double Carnation or Pink; 3, The Double Crimson.

For the single-blossomed class we have an almost large less supply. It is divided, first, into varieties with light and small flowers. Of the former, we have three distinct classes—1, The pure white flower. Examples: *Ar. blanche*, *Blanche d'Am-rique*, *Incomparable a fleurs de fruits blancs*. 2, The deep rose or pink, with a dark disc. Examples: *Stanwick*, *Pitmaston Orange*, and *Pine Apple Nectarines*. 3, Pale pink: *Malta* and *Noblesse Peaches*, and new White Nectarine.

Then, again, of the small flowers, we have—1, Some a much deeper rose, nearly red, than in any of the others. Examples: *The Prince of Wales Nectarine* and *Early Albert Peach*. 2, Pale dull red: *Chancellor* and *Royal Vineyard Peaches*.

In some of Mr. Rivers's numerous seedlings we have yet more distinct varieties of the flower, some of which have been produced by crossing with Double Crimson, so that there is abundant variety to make an excellent display, and I hope to see it.—ARCHAMBAULT.

## ON THE DECLINE IN THE CULTURE OF FLORISTS' FLOWERS.

The excellent letter of Mr. Charles Turner in the *Journal* of April 7th has suggested to me that it may probably be as well to say something on the decline, or supposed decline, in the culture of what are ordinarily called florists' flowers.

There has always been a difficulty in defining what is exactly meant by florists' flowers, and what flowers are to be included in the category, and what excluded. This difficulty is on the increase, for every year seems to make the circle wider than before. It has invaded the greenhouse as well as the frame, and we know not whether the stove and the Orchid house may not ere long make it still greater: for if by florists' flowers be meant those flowers which are kept in collections of named varieties, it is clear that the Azalea, the Gloxinia, and the Achimenes may

lay as much claim to the title as the Pansy, Auricula, or Pink.

But in the observations I now make I would rather narrow than widen the circle, and would exclude from it altogether those plants which require a greenhouse for their successful culture. Let me, then, take only those old-fashioned flowers which first aroused in myself, and I believe in many others, a love for horticulture, and to which amidst all the revolutions of taste I am conservative enough to cling. Let us examine as to the decline in the taste for the Auricula, Pansy, Pink, Picotee, Carnation, Dahlia, Hollyhock, and Tulip, and see whether the statements recently made in the Journal are as devoid of fact as they are of common sense.

Now, as in the old story of Charles II. and the pail of water and the fish, the first matter to decide is, Has the taste declined generally? From a careful consideration of the matter, and from information afforded to me by many of whom I have made inquiries, I am not at all sure that this decline is so general; that it has been so about the metropolis is patent to everybody. There are many of us who can look back to enjoyable days spent at exhibitions whose sole object was the encouragement of the growth of our favourites, but that is all passed. However, I understand that one florist at least cannot supply the demand made on him for Carnations and Picotees; another florist says the same of Auriculae; a third firm can speak of a very great demand for Pansies, and it seems to me that the flowers which have most suffered are the Tulip and the Dahlia. In the north, Tulip shows are still in vogue, but around London they are amongst the things of the past.

To say that this decline has been caused by the similarity of the flowers sent out is simply nonsense. That has had certainly nothing to do with the Auricula, for the new varieties of that flower are very, very few indeed; and although to the unpractised eye there is nothing but a very slight improvement to be seen, yet the growers of florists' flowers know perfectly well that the flowers of a few years back will stand no comparison with those of recent introduction. Take, for example, Picotees. We have had some fine lacy-edged purples for many years, but there is not one of them that will bear comparison with Admiration sent out by Mr. Turner last autumn. Besides, let us take the most generally grown flower of the present day, the Zonal Pelargonium. Is there no similarity there? Do we not see dozens of new varieties sent out each year, most of them the counterpart of those we already have, and yet people buy them? so that I am sure this has no influence.

As to the decline being caused by the dishonest tricks of exhibitors, Mr. Turner has so effectually and effectively disposed of that matter that there is no need of saying another word in refutation of it. Twenty or thirty years ago there used to be many tricks in the exhibiting of all kinds of productions. Florists' flowers were manipulated, fruit was borrowed, and plants bought just before the show, &c.; but a higher tone of feeling has prevailed, and those who resort to evil practices in the matter of exhibition are the exception to the rule.

To what, then, are we to attribute the decline, so far as it has taken place? I believe it may be summed up under the following reasons.

1. The extensive, nay, almost universal practice of what is called the bedding-out style of gardening, the fashion for which has spread through all classes of the community who are interested in flowers, makes such demands on the time, space, and attention of the gardener, and is, moreover, so easy in its practical working, that it has gradually shoved on one side the florists' flowers. It is easier to grow 10,000 bedding Pelargoniums than one frameful of Auriculas. The garden looks so brilliant with its mass of colouring, and people who take no trouble about their garden can yet profess to know so much about what is the "newest thing in bedding out," that I own I am not surprised that the one has elbowed out the other—the frame which sheltered the Pansy or the Auricula is used for the Calceolaria or Pelargonium. Then the gardener or owner must have his garden as gay as Mr. Tomkins's, and so the matter progresses.

2. Florists' flowers do not pay so well as the more easily grown plants that are now so much the fashion. What, for instance, does a nurseryman make by his collection of Auriculas? Not one-tenth part of what he might make if he gave up the space they occupy to the more easily grown plants.

3. They are not sufficiently encouraged at our metropolitan exhibitions. The small prizes offered by our two great Societies are not sufficient to encourage amateurs, and it is only those

who live near London and have grown them for years that care to compete. The prizes induce no fresh hands to come forward, and, as I have always maintained, exhibitions fester a flower. Do away with Rose shows—the Rose would still be grown, but not with one-tenth of the ardour and zeal it is now. One can hardly look for an improvement in this respect—yes, matters get worse. The abandonment of the Crystal Palace autumn show on purely financial grounds has given a severe blow to the growth of the Dahlia and Hollyhock; and unless the florists find themselves strong enough to establish a floricultural society, which I look forward to some day seeing, I fear we shall still have to mourn over the decay of florists' flowers.

Such seem to me some of the reasons for the decline of the culture of florists' flowers. They are not very philosophical, but they are plain common-sense ones I believe. We are counted by those who aim at great things as poor grovellers. Well, so it must be, and we are content to bear it; wital that, we have left our mark in the floriculturists of England.—D., Deal.

## THE CHEMISTRY OF MANURES.

SINCE the papers on this subject by Mr. Peach appeared in "our Journal" (see pages 206 and 225), my thoughts have been constantly recurring to them. I hoped to see some one capable of handling the subject in a masterly manner either refute or confirm Mr. Peach's theories. What opinions are safe from Mr. Peach's attacks? First, he proves that both theorists and practical men had incorrect views with regard to heating by water, and now he wishes to prove that the data on which the value of manures is estimated are erroneous; at any rate, that if practically correct they are based on false assumptions. It appears that he does not wish to prove that a manure is not valuable in proportion to the nitrogen it contains, but that it is not to the nitrogen it owes its value. His propositions are so novel and so plausibly stated, the subject is so interesting and difficult, and yet so important, that even if he be wrong those who are forced to reconsider the matter will be benefited.

In approaching this subject I would carefully guard against, even in appearance, claiming any right to speak as a professor of chemistry, to which I have no manner of pretension, also against appearing as an opponent of Mr. Peach. It seems to me quite clear he is not anxious to prove he is right and all our best authorities are in the wrong, but being one of those who think independently, he has been led to doubt the generally received opinions as to the sources of nitrogen in plants, and wishes to elicit the truth by discussion.

Let me first state what I gather to be his views. 1st, That relatively to other elements nitrogen is found in small proportion in plants. 2nd, That as the atmosphere by which plants are surrounded is nearly four-fifths nitrogen, it is hardly possible they should not be able to procure from this source what they require. 3rd, That as carbon is the principal constituent of plants, it must be more necessary than nitrogen. 4th, That whether nitrogen be combined with hydrogen to form ammonia, or presented in the form of nitrate of soda or of potash, it has in each case so weak an affinity for the elements with which it is combined, that it readily yields its base to any other acid in combination with carbon, thus acting as a solvent for substances more valuable than nitrogen. 5th, That as water is a very stable compound of oxygen and hydrogen, and only resolved artificially into its elements with difficulty, it is more probable that plants obtain their hydrogen from ammonia than from water. 6th, That as the air contains traces of ammonia and nitric acid, and rain water owes its softness chiefly to the presence of ammonia, there is reason to think a fictitious value has been placed on these substances in estimating the value of a manure.

Whether I be correct or not, these are what I gather to be the reasons why Mr. Peach doubts the received opinions on the subject. My first objection would be that the proportion in which an element is found in a plant is no proof of the value of that element in a manure, because it may not be necessary to furnish it artificially at all—"We do not carry coals to Newcastle." Scarce and valuable as phosphorus is as a manure, I have land which is not benefited by the application of phosphates, and I think plants growing on cultivated land seldom suffer from a deficiency of carbon, having the power of abstracting it both from the air and the soil. Though a small amount of nitrogen is found in plants, yet, if necessary to their existence

or well-being, it will be absolutely required in a manure intended for their production if they have no natural source of supply—i.e., if they cannot procure it from the air and soil in sufficient quantity. If glass were scarce, the windows of a house might cost more than the bricks and timber, and would be as necessary to a comfortable dwelling. My second objection is that food containing nitrogen is necessary to the formation of muscle in an animal, though it breathes the same atmosphere as the plant, consisting of four-fifths nitrogen, thus proving the animal is "placed in a medium necessary to its existence without the power to assimilate it."

Then, again, as the effect of an application of nitrogen in any form is to darken the green foliage of plants and promote their growth, I think the good effect of such application can hardly be referred to the base combined with it, or to the solvent powers of such nitrates or other substances contained in the soil. There surely would be more difference seen in the effects produced by hydrogen, soda, or potash if these were the active principles. Then, again, if the increased greenness of vegetables manured with ammonia be due to the hydrogen of that compound, why is the same effect seen to follow the application of nitrate of soda or nitrate of potash, which contains no hydrogen? If the nitrates are compounds of weak affinity, and thus act as solvents, or set chiefly by their bases easily set free, how will the action of sulphate of ammonia be explained? Are not the sulphates, generally, very stable compounds? If nitrate of soda is so valuable as a manure, how on these principles is not carbonate of soda equally valuable? Though carbonate of soda is a more stable compound than nitrate of soda, yet as carbonic acid is a weak acid, it must readily give up its soda to plants, particularly, one would think, in presence of quicklime, or some stronger acid in the soil or plant. Common salt is a solvent for lime. Is no soda set free in this case? I ask for information, for I have never investigated the subject. If it be so, ought not an application of common salt on well-limed land to be followed by more marked effects? As few soils are completely barren from the total absence of some principle necessary to vegetation, and yet few are found to which an additional quantity of one or more of such elements does not conduce to a great and marked increase of production, is it not possible that the minimum quantity of ammonia or nitric acid necessary for a plant's healthy growth may be furnished by rain water and the air? But if that plant is to be stimulated to increased productiveness, or if a larger number of such plants are to be grown in a given space than it would naturally maintain, an additional dose of nitrogen may be necessary. Knowing as we do that food containing no nitrogen can only make fast, that manures appear to act quickly and effectually in proportion to the nitrogen they contain, one can hardly be brought to look upon nitrogen as of small account.

I offer these crude remarks more to induce Mr. Peach to reconsider the subject, or draw out some other capable correspondent, than with the idea of maintaining any theory myself.—J. R. PEARSON, *Chilwell*.

## EXPERIMENTS ON GRAFTING VARIOUS SORTS OF FRUIT

ON DIFFERENT KINDS OF STOCKS, MARCH 1867.

THESE experiments were conducted at the Royal Horticultural Society's Gardens, Chiswick.

	Grown.	Failed.
CERASUS MAHABLE, grafted with <i>Cherry</i> , Elton	none	all
Morello	none	all
May Duke	none	all
Plum, Prince of Wales	1 strong	3
Mitchelson's	none	5
Green Gage	started	all
Laurel, Portugal (grafts had)	none	all
Common	none	all
COMMON CHERRY, grafted with <i>Cherry</i> , Elton	none	all
Morello	weak	2
May Duke	3	2
Plum, Mitchelson's	none	all
Prince of Wales	2	1
Green Gage	none	5
Laurel, Portugal	none	6
Common	none	all
CRATEGUS SPECIOSA (weakly-growing variety), grafted with <i>Pear</i> , Doyenne d'Été	3	1
Winter Nelis	2	none
Marie Louise	2	none
Windsor	none	none

CRATEGUS SPECIOSA (strong-growing), grafted with <i>Pear</i> , Marie Louise	1	3	Failed.
Winter Nelis	1	none	
Doyenne d'Été	1	2	
Windsor	none	1	
CRATEGUS ACERIFOLIA, grafted with <i>Pear</i> , Marie Louise	4 (1 strong)	none	
Winter Nelis	5 (1 weak)	1 strong	none
Nouveau Poiteau	1 good	none	
Doyenne d'Été	3 fair	1	
CRATEGUS COCCINEA, grafted with <i>Pear</i> , Doyenne d'Été	3	2	
Winter Nelis	5 good	none	
Marie Louise	2 weak	2	
Nouveau Poiteau	3 (2 strong)	1	
POMME DE PARADIS, grafted with <i>Apple</i> , Golden Harvey	all	none	
Old Golden Pippin	all	none	
Dumelow's Seedling	all	none	
Gloria Mundi	all	none	
MUSSEL PLUM, grafted with <i>Laurel</i> , Common (made four leaves)	2	8	
Portugal	none	all	
Amelanchier, sp.	none	all	
Prunus Padus	none	6	
PRUNUS DAMAS NOIR, grafted with <i>Cherry</i> , Morello	none	all	
Elton	1	2	
May Duke	none	all	
Plum, Green Gage	6	1	
Mitchelson's	2	2	
Prince of Wales	4	1	
AMELANCHIER, sp., grafted with <i>Pear</i> , Marie Louise	1 weak	none	
Winter Nelis	4 weak	none	
Apple, Old Golden Pippin	2 weak	2	
Golden Harvey	none	all	
PRUNUS PADUS, grafted with <i>Pear</i> , Winter Nelis	none	all	
Nouveau Poiteau	none	all	
Doyenne d'Été	none	all	
Marie Louise	none	all	
Cherry, Morello	none	all	
Elton	none	all	
May Duke	none	2	
Plum, Mitchelson's	none	all	
Prince of Wales	5 strong	1	
Green Gage	2 strong	2	
SORBUS AUCUPARIA, grafted with <i>Pear</i> , Marie Louise	8 weak	none	
Nouveau Poiteau	7 weak	none	
Winter Nelis	7 weak	none	
Doyenne d'Été	3 weak	3	
COTONEASTER LAXIFLORA, grafted with <i>Pear</i> , Winter Nelis	4 strong	1	
Nouveau Poiteau	5 weak	none	
Marie Louise	3	2	
Doyenne d'Été	1	all	
COTONEASTER FRIGIDA, grafted with <i>Pear</i> , Doyenne d'Été	none	all	
Marie Louise	1	3	
Nouveau Poiteau	7 good	1	
Winter Nelis	4 strong	2	
QUINCE (strong stocks, grafted with <i>Pear</i> , Doyenne d'Été	5 (1 strong)	none	
Marie Louise	4 weak	4	
Winter Nelis	2	2	
Windsor	1 (2 strong)	none	
QUINCE (weak stocks, grafted with <i>Pear</i> , Doyenne d'Été	1 strong	1	
Marie Louise	6 weak	1	
Nouveau Poiteau	7 weak	none	
Winter Nelis	6 strong	1	
Amelanchier, sp. (I broken by wind)	3 weak	1	

Note.—The failure of the experiments in some instances may be due to several other causes besides that of incompatibility of stock and scions, such as imperfect operations or the too greatly advanced state of the stocks themselves before cutting down, as in the case of the Quince, or, as in the case of the Cherries, the greatly advanced state of the buds on the grafts used. Laurels, again, would, without doubt, succeed better grafted in a frame or some other place with a more confined and regularly humid atmosphere, while many would perhaps succeed best by budding in the summer season.—A. F. BARON.—(*Royal Horticultural Society's Journal*.)

FENGL.—We learn from Mr. Worthington G. Smith, in reference to a recent report of the proceedings of the Woolhope



**FLORAL COMMITTEE.**—Rev. Joshua Dix in the chair. On this occasion there was not a large show in the Council Room, but the awards were numerous. Some of these have been already noticed where the subjects to which they were given formed integral parts of the exhibition in the Conservatory. Mr. C. Noble sent a basketful of two very beautiful Clematises, which, having already received certificates as novelties, were awarded a special certificate. One of these was Miss Bateman, white, with a faint flush of violet, and when it opens having a lemon band in the centre of each petal; the other was Lord Lonsborough, pale lavender. Both of these are very fine, broad-petaled varieties, in which the regular arrangement of the stamens in the centre add to the effect. Mr. Williams, of Holloway, was awarded a first-class certificate for Gloxinia Scarlet Gem, an erect flowering variety, very intense in colour. Mr. R. Veitch, Exeter, received a special certificate for a specimen plant of seedling white Azalea Lady Baltimore, in excellent bloom and condition notwithstanding its long journey; and Mr. Atkins, Farnwick, had a similar award for a fine pot of Cyclamen repandum (Silldorp), C. venum of De Candolle and others. A special certificate was also given to Mr. W. R. Morris, of Deptford, for a basketful of Tricolor Pelargoniums, interesting as showing the development of variegation; and a like award was made to Mr. Neelle, gardener to the Comte de Paris, Twickenham, for a collection of Orchids and Ophrys, chiefly from Spain.

Messrs. E. G. Henderson & Son had a first-class certificate for Pansy Golden Belder, as a showy variety for garden decoration; and the same firm sent a variety of *Roya carnea* with leaves edged with crimson colour. Francisson, stated to be a hybrid, and a variegated *Canna*, not, however, effective in its present state. From Messrs. A. Henderson & Co., Pine Apple Place, came *Hydrangea Onaska*, with large heads of pale blue flowers passing to white; and from Mr. Hooper, Bath, a stand of cut Pansies, of which *Sunshine*, yellow, with a broad belting of orange brown, and Mrs. Shirley Hibberd, the prevailing colour of which was purplish lilac, received first-class certificates, the former as desirable for bedding.

Mr. Green, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, exhibited, besides other plants, a Brazilian *Portulaca* called *aracata* with silvery variegation. Mr. Denning, gardener to Lord Lonsborough, Grimston Park, sent a new *Cattleya*, Mr. Turner, Avenha Col, Champagne, a very beautiful grey-edged variety, for which a first-class certificate was given; and a special certificate was awarded to a finely-flowered specimen of *Azalea Grande Duchesse de Bade*, grown in the same style as the *Azaleas* exhibited by him in Class 3. *White Rhododendron Edith*, and cut blooms of *Azalea Reine Marie Henriette*, the latter a very beautiful soft rose, with crimson spots, were also shown by Mr. Turner.

Mr. Garland, gardener to Sir T. D. Achland, Bart., Killerton, received a special certificate for magnificent cut spikes of *Platanopsis* *Miss Dowson*, Lord Lonsborough, and a *Portulaca* called *Gold and Bronze Pelargoniums*. Messrs. F. & A. Smith, seedling *Cinerarias*; Mr. Wiggins, gardener to E. Beck, Esq., cut blooms of seedling *Cyclamens* and *Polyanthuses*; and Mr. Keller, Colworth Gardens, cut flowers of *Hippastrum*. Messrs. Veitch sent their hybrid *Eschscheria*, already noticed; and J. Anderson-Henry, Esq., Primulas with leafy calyxes, and a hybrid *Rhododendron* between *R. ciliatum* and *R. Brodiaii*, by no means attractive.

Special certificates given to Mr. Denning, gardener to Lord Lonsborough, Messrs. Veitch, and Messrs. Hollishead have been recorded in our report of the Show. The same award was made to Mr. Noble for a group of *Azaleas*; to Messrs. Stauffer for *Acers*, also for *Manchali Nid Rose*; to Messrs. F. & A. Smith, to Mr. James, and Messrs. F. G. Henderson for collections of plants; to Mr. Laing for *Rhododendron* Countess of Haddington, to Messrs. Dobson for *Calceolarias*, to Mr. Ware for Alpine plants, and to Messrs. Carter & Co. for Golden Tricolor Pelargoniums.

**GENERAL MEETING.**—W. Wilson Saunders, Esq., F.R.S., in the chair. After the election of twelve new Fellows, and the usual announcement of the awards, the Rev. M. J. Berkeley addressed the meeting. After stating that the *Primula* from Abyssinia shown on the 9th inst. was probably only a form of *P. verticillata*, he passed on to the supposed identity of *Oncidium amictum* and *O. sacrodes*. Although there were some points of difference between the specimens he later shown by Messrs. Veitch and that of *O. amictum* sent to the previous meeting, on the whole he considered the former could only be regarded as a line variety of *amictum*. A new yellow-flowered *Epidendrum* shown he proposed should be called *E. Bowmanii*, that being the last plant sent home by the late Mr. Bowman. The collection of terrestrial Orchids from the gardener to the Comte de Paris then came under notice, and Mr. Berkeley remarked it was very desirable that those having friends in the south of Europe should ask them to collect bulbs of any plants found there. The hybrid Ivy-leaved Pelargoniums, the extreme difficulty with which they had been obtained, and the hundreds of crosses made without success by Mr. Willis before he attained his end, were next referred to. In speaking of the *Dorstenia* from Mr. Wilson Saunders' gardener, Mr. Berkeley said he believed it was under consideration to have a set of certificates for plants of botanical interest, and had such been in existence it would certainly have had a first-class.

The Chairman moved a vote of thanks to Lord Lonsborough for his splendid exhibition of Orchids, which was unanimously carried.

He then noticed the *Epidendrum*, as being one of a class of Orchids not shown, but which, growing up among bushes, would some day be very valuable from the numerous heads they produce. Though their flowers were small, they should not be neglected. He then urged the claims of terrestrial Orchids on attention, and charming as those from the south of Europe were, those from the tropics—from the Cape, from Australia—were far more brilliant. They could be easily secured, easily sent home, but not easily grown. The difficulty in their culture arose from a want of knowledge of the conditions they required, and especially the hygro-metrical state of the atmosphere; this, more than temperature, he believed to be the main point.

## FLOWER SHOWS AND COMPETITORS.

I AM glad to see these subjects set up for discussion in your columns, as I and some of my friends think there is much need of reform. Mr. Turner gives "the most positive contradiction" to Mr. Paul's statement that Pelargonium flowers are gummed, while Mr. Cutbush asserts "that it is impossible to apply it (dressing) to the *Hyacinth*." Now, it is common talk in my circle that the flowers of certain Pelargoniums were found to be gummed at a recent Enfield show, and that the flowers of certain *Hyacinths* were found to be pinned at a recent Liverpool show, and that the judges, notwithstanding, awarded them prizes. I do not say this report is true; but it is generally believed, and if untrue it should be contradicted on authority. Mr. Turner cannot point out, I think, where and in what words Mr. Paul has "denounced" flower shows, and I am similarly of opinion that Mr. Cutbush cannot show where and in what words Mr. Paul has said the public visit the nurseries less frequently than formerly.

To denounce the practices of those exhibitors who have brought flower shows into discredit is not denouncing flower shows. "Purchasers are now forsaking the flower shows and returning to the nurseries," says Mr. Paul (JOURNAL OF HORTICULTURE, page 221). Let me say to the combatants, "Fight fairly, and if you do not all take first prizes you will then all win."—AN OLD EXHIBITOR.

## PUZZLING HARES AND RABBITS.

I CAN strongly recommend a plan adopted by a friend of mine who used to suffer very much from the nocturnal visits of rabbits and hares, that used to eat and destroy nearly everything that was green. The plan was this:—While the plants were still wet with the dew, he used to go over the beds and rows, and dust them with pepper from a large-sized tin pepper-box with fine holes in the top. The plan, I must confess, was to me a novelty, but there was no mistake about the effect intended, for not a thing was touched wherever the pepper went.

I have never had any necessity to adopt this proceeding myself, but have no doubt it would answer the same end with rats and mice, particularly for plants in frames under glass where they would be kept dry; as, of course, after a fall of rain the operation would have to be repeated.

The plan is simple and not very expensive; an ounce of pepper goes a long way. If "R. F." adopt it, perhaps he would kindly favour us with the result in a future number.—T. M.

## SHRUBS AND TREES FOR THE SEACOAST.

I AM living near Weymouth. My garden is exposed to the well-known heavy gales from the Chesil beach, and also from the Bay of Weymouth, and from experience I can strongly recommend the Evergreen Oak, or *Quercus Ilex*, *Enonymus japonicus*, *Tamarisk*, *Hollies*, *Berberis*, and both the *Pinus insignis* and *austriaca*, also the *Cupressus macrocarpa*. The first two named no wind will injure, but although the others mentioned may be a little cut by the sea gales, they very soon recover their beauty. I have had the experience of fourteen years.—D., near Weymouth.

## COTTAGERS' HORTICULTURAL SHOWS.

AMONGST the many institutions having for their object the improvement of the homes of the labouring classes, there are none really more deserving of support than cottagers' horticultural shows. The encouragement they give to good cultivation and careful and well-directed industry has certainly not yet been sufficiently appreciated, while those who condescend and assist such shows do not always do so in the most judicious way. Others refrain altogether, from reasons well explained in a very useful tract that has been put into my hands, published by the proprietors of *The Midland Counties*

*Herald*, and the contents of which first appeared in that paper. The following quotation describes the apathy with which cottagers' exhibitions too often are treated.

"Many of our readers have no doubt been present at some of the exhibitions of cottagers' floral and horticultural societies, and have been much interested in what they have witnessed. There are none of our village festivals more pleasing, or productive of more useful results than those to which we are anxious to invite attention; and we hope in doing this to supply some information and to make some suggestions which may aid those who are desirous of establishing exhibitions of the kind in localities in which they have not hitherto been found. We shall accomplish this object the more satisfactorily by showing what has been done in villages with which we are acquainted, and by pointing out how these societies may be advantageously worked. During the past year we had the pleasure to notice in our columns the formation of several new societies, and we have heard privately of a number of others; the reports being in all cases of an encouraging nature. We regret to state, however, as the result of rather extensive inquiries, that at present comparatively little has been done in this direction. In some cases there is an indisposition to undertake the necessary work; in others there is the want of any real concern for the welfare of the labouring classes; while in some instances there will be found the 'Village Tyrant,' some churlish, and it may be, wealthy person, who opposes every good work which it is proposed to set on foot—one who belongs to no class or school but that

"Where blind and naked Ignorance  
Delivers railing judgments, unshamed,  
On all things all day long."

but who has, unwittingly, been permitted to obtain an evil influence over his neighbours. Cases like this are, happily, exceptional, and generally the reason that nothing is done is this, that every trifling apparent difficulty is magnified, and becomes 'a lion in the path'; but where the task is undertaken in earnest it soon becomes a 'labour of love,' and all obstacles disappear. We have said that cottagers' floral and horticultural societies are amongst the most useful of the many valuable institutions to be found in our villages, and we make this assertion not only from what we have seen ourselves but on the authority of a number of clergymen, of laymen who assist in their management, and of some of our leading nurserymen, and others to whom we have spoken on the subject. The vicar of a parish in Gloucestershire writes:—"Last year I commenced in my small parish a flower and vegetable show, and was greatly pleased that out of my parish, which only contains fifty-four houses, there were about two hundred entries, and this year (1869) my people are taking it up warmly." Indeed, from whatever part of England our informants may have come, their testimony as to the utility of these societies has always been the same, and we may nearly always been given in the same words. Another point we may mention, and of the truth of which we are equally well satisfied, is this—that in any locality where progress in horticultural matters has been but slow, the best stimulus that can be applied is the establishment of a cottagers' society, conducted on principles like those to which we shall more particularly allude.

"As a rule, it is desirable that the clergyman of the parish should take the first steps towards the establishment of one of these societies, gathering around him a few influential laymen, and securing the assistance of the ladies, which will be as valuable here as it is everywhere else. We will refer, in the first instance, to a cottagers' show pure and simple, where cottagers alone compete for prizes, and the gentlemen and nurserymen in the neighbourhood kindly send plants for the decoration of the room or tent, and specimens of new and well-grown fruits and vegetables. It is to these latter contributions that we have alluded as being calculated to benefit the whole district, giving rise to a friendly rivalry without in any way interfering with the first objects of the society—that of promoting the interests of the cottagers."

Now, apart from the reasons given above for withholding support to, or neglecting to establish what the author calls a village horticultural show, there are many well-disposed persons who think they do all that is required of them by subscribing to some important horticultural society established at the county town, or some other important centre, where exhibitions of plants and fruits from the best gardens in the neighbourhood are held. There is a liberal array of prizes allotted to cottagers, and the general public, on being admitted, feel not a little gratified to find the cottagers' productions in many cases quite equal to those of the subscribers and others, who, by their position, have greater advantages than the holders of cottage gardens. Unfortunately, a closer inquiry into the matter too often reveals the fact that the prizes mostly pass into the hands of a few, some of whom ought either to be regarded as amateurs or even nurserymen. This is more especially the case in an old-established society, and however stringent a rule may be laid down, it is very difficult to exclude the speculative exhibitor without at the same time shutting out the deserving, industrious man. In a wide-spread association it is no easy matter to distinguish between the cottager who grows little or nothing but that which is required for his own use, and the little market gardener or nurseryman, whose

assumed calling may be widely different from either, but who, nevertheless, contrives to grow many things for sale. The retired tradesman, or man of some means, also sometimes lowers his position by competing as a cottager. These evils generally result in the public seeing the same names year after year posted as winners, and the competition is reduced to a minimum.

Now, this drawback is avoided in the village parish show, where each exhibitor is known to all the others, and, to a certain extent, the products of his garden also; therefore, anyone guilty of exhibiting what is not his own has a good chance of being found out, and public opinion in a small community of fifty or a hundred individuals is not without its influence, so that the would-be delinquent cannot commit improper acts with impunity; besides which, it often happens that a village or parish contains some one, be he a squire, rector, or military officer, who, in addition to patrolling the exhibition, also has the power of punishing any act of intended impropriety in a prompt and decisive manner, or whose decision in any disputed case is final. But so far as my knowledge goes, and I am not without experience in the matter, it is rarely that any diabolical ariese, and honest and honorable rivalry is the order of the day. In reference to this matter, the writer of the pamphlet, alluding at the same time to prizes for well-managed gardens, makes the following remarks:—

"We cannot too strongly recommend the plan of offering prizes for the neatest and best cropped and cultivated gardens. The prizes of this kind in a village horticultural society would lose much of its value; for the garden inspectors, if judiciously selected, would be enabled on their visits to the several gardens to make many useful suggestions. At the same time their inspection would be a sufficient check upon any attempts at deception if they were the judges also, which should be the case wherever such an arrangement could be made. We believe, however, that the cases in which a cottager shows things which are not grown in his own garden are exceedingly rare, although the mere suspicion that such is the case is sometimes made an excuse for withholding support to our village societies, or for refusing to aid in their establishment. A regulation should always be inserted in the prize sheet to the effect that any one exhibiting specimens not of his own growing would be excluded from all future shows. At the same time it is not well to act as though every one was suspected, but rather to give proof that we have confidence in the integrity of our humbler neighbours. We have seen a rule on a few prize sheets somewhat to this purport, that after the entries have been made, which is to be done some considerable time before the show, any or all the members of the committee shall have power to visit the gardens of the intending exhibitors as often as they may think necessary. A parish in which a rule of this kind is required would scarcely be helped by the establishment of a cottagers' flower show, and no consideration would induce us to join a committee which considered it to be necessary. It is much better to convey the impression, while guarding in a proper manner against any breach of the rules, that we rely upon the honour of those with whom we are dealing, than to act as though we suspect and distrust them. It is a mistake to suppose that the poor do not deeply feel and resent, although not openly, a want of confidence in their integrity."

As we have already remarked, cottagers' flower shows are amongst the most pleasing and attractive of our village festivals; and the interest of the proceedings may be greatly increased by making the distribution of the prizes at the close as agreeable and attractive as possible. The Rev. C. B. Snep, the Rector of Perry Barr (who was the founder of the show in that parish, and has for more than sixteen years taken the most active part in its management), usually gathers around him on these occasions a goodly number of his brother clergymen, friends, and neighbours. We may mention, also, that the late Lord and Lady Calthorpe, when at Perry Barr, seldom or never failed to be present; and we should be glad to see this excellent example more generally followed than it has hitherto been, and the resident noblemen or other landed proprietors meeting and encouraging their fellow parishioners in so good a work. A few addresses of a practical character, as is the case at Perry Barr, can be usefully given at these meetings, reference being made to the productions displayed on the tables, and to the best modes of cultivation, while the garden inspectors could at the same time report how far progress had been made during the year. A few books, picture cards, &c., would, at the same time, be very acceptable as little presents to the children who may not have been prizewinners—or, we would rather say, to all the poor children who may be present—so that they all might be sent home happy. The judges, also, would do well, after having disposed of the prizes set forth in the schedule, to point out some of the exhibits unnoticed which possessed considerable merit, with a recommendation that a few additional premiums should be given. If the attendance at the distribution is like what we have seen at Perry Barr, and should be glad to hear of elsewhere, the trifling addition to the funds which would be required for the purpose suggested would be obtained without difficulty."

With regard to the funds necessary to commence an insti-

intion of this kind, the sum required is not so very serious an outlay after all, and a few benevolent persons having the means would be simply repaid by the sense of the good they were doing, and by witnessing the pleasure of the successful exhibitors. In some villages there is that inestimable place of public resort, "The Green," where a suitable tent for the exhibition might be erected, and the hire of it is not usually a serious matter. Such a tent had better be open at one end, with a broad centre table for the more choice kinds of produce, as fruits, small vegetables, plants, and flowers, and a narrower table all round the three sides for larger productions, such as Cabbages, Carrots, and Rhubarb; and a little order in the arrangement will give the whole a pleasing appearance. Sometimes a vacant space may be occupied by the productions of some gentleman's garden, or any interesting or instructive object that might be lent for the occasion.—J. ROXBOROUGH.

(To be continued.)

## PUZZLING THE CATS.

Has anyone with a small garden in a densely populated neighbourhood ever been troubled with cats? Has anyone had reason to observe that natural curiosity, that incarnate love of knowledge, which impels the feline race to search for it round the roots of freshly-planted specimens? Have finished beds borne witness to their infernal gambols *au clair de lune*? I present a "perfect cure," or, what is better, prevention. The material is simple enough, and obtainable everywhere; it is wire-netting. But how to apply it?

At first I had it fixed on the tops of the walls and fences, thus raising them 4 feet all round the premises. Well, this answered for about an hour and a half, after which interval it was of no service whatever, apparently an attraction. Tabbies and tortoiseshells, tailed and tail-less alike, seemed to approve of and fall into the arrangement readily. They also brought friends to see the novelty. Now, the grandest discoveries have ever been of the simplest character. By simply taking down the wire-netting and fastening it flat on the top of the wall or fence, like a coping, projecting 2 feet on each side—if it bend down by its own weight and form an angle so much the better—I have for now six months been able to defy all the assaults of the enemy. I have seen many a grimskin, perched in a tree, with wistful eye "view the landscape o'er," but never yet has one managed to cross.

It might be asked, Why have the wire on your own side too? Stop a bit; the foe may get in through a gate or window carelessly left open, and, then, if anyone is fond of what our neighbours call "le sport," if he admires feats of agility, he will wish to keep the intruder from getting out immediately. Let him close the gate and begin. To watch the pursued puss run or rather fly along up in the angle *a*, is a delight hardly to be surpassed, except by that of watching two! To see "the affrighted foe race round the walls and run to each avenue," will be vengeance enough without the whip, with which, however, it is well to be armed, as I have found a cat in despair face about and attack dogs and children. Let this simple remedy be tried. I will answer for it that the angle *a* will keep any cat from getting in, and the angle *b* from getting out, until you choose to let it.—PENUMBRA.

## WORK FOR THE WEEK.

### FRUIT AND KITCHEN GARDEN.

AMONG gardeners' enemies snails and slugs hold a prominent position. The pressure of gardening work in April and May is so great, that the destruction of these depredators is apt to be neglected. Lime is instant destruction to them; it is, however, not always at hand in a quick state, and a shower of rain soon mollifies its power, but new sawdust and riddled cinder ashes if timely applied, will set them at defiance. The ashes should be riddled to the size of Radish seed, all dust being excluded. These, strewn over the young crops when just emerging from the ground, will be most efficient; they likewise afford

an excellent chance, when occasion requires, for a thorough mechanical division of guano as a top-dressing. A handful of good Peruvian guano blended properly with the ashes, would prove a ready mode of manuring a weak seed-bed. Let Beet, *Scorzenera*, *Salsify*, &c., be sown if not done. Transplant *Chamomile*. Secure plenty of good Parsley in highly-manured beds at the nearest end of the kitchen garden, and examine and remove the *Herb plantations*. Sow a bed or two of herbs for next year's planting. This should be done every second year. Among such herbs may be mentioned Pot Marjoram, Winter Savory, and Thyme, of which the old plants are liable to wear out. Sow successions of *Round-leaved Spinach* in a cool aspect. A sloping bank should now be prepared and planted with good runners of the Alpine Strawberry for fruiting in September and October; plant three in a patch, the patches at intervals of 15 inches, the ground between being covered with slates when the plants are established. Take care to thoroughly clean all Strawberry plantations before the runners come out. Thin suckers from Raspberries, leaving four or five to each stool.

### FLOWER GARDEN.

Thoroughly dress all beds and borders; prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, placing drainage at the bottom, and good turfy and mellow compost above. Trim and prune all climbers on out-door trellises or conservative walls, and prepare stations to fill up blanks. Auriculas are now blooming, and the amateur may experiment in cross-fertilisation to obtain new varieties. In growing for exhibition the pipe which are misshapen should be removed with a sharp-pointed pair of scissors, and care must be taken that the trusses of bloom are not exposed to the too powerful action of the sun. If the seed gathered last season has not been previously sown, now will be found a good time. Sow in shallow pans or boxes in light vegetable soil; it is only requisite to press the seeds on the surface and cover them lightly with fresh moss. They will, when placed in a cold frame, be up in a few days. Take great care that the soil is close round the necks of the rising plants of *Ranunculuses*; remove all weeds as they appear, and if the bed is infested with worms pour lime water into the holes. The universal lateness of Tulips may save them from injury from the late spring frosts, but there are fears that the bloom generally this season will be unsatisfactory. When the flowers begin to show colour the top cloths of the awning may be put on: carefully examine all diseased foliage, and expose the affected parts as much as possible to the sun. Put down the sticks as soon as possible to the Carnations and Picotees; if this be delayed the roots will be injured by their insertion.

### GREENHOUSE AND CONSERVATORY.

Great care should always be bestowed when watering plants. Too much, too little, or an injudicious mode of application is equally fatal to high cultivation. Very many plants are seriously injured at the period of shifting or potting-off, by improper watering. It has been the fashion to recommend what is termed a "thorough soaking" to newly-potted stock, and it is feared that in this very act the foundation of what is technically termed "sourness" is frequently laid. A very fine-rosed pot, with slight applications of water at intervals soon after potting, is the best way, as a general rule, to penetrate the mass, and to cause the particles of soil so to arrange themselves that the access of air shall be somewhat modified but by no means intercepted. There is, however, no good reason why all plants should be watered immediately on shifting them. When a plant has no ball of earth the water should, of course, be made to penetrate the whole mass, in order to prevent the plant's drying up. When, however, the plant—say a Camellia, has a hard-wedged ball, steeping it in water for an hour is the preferable course. After this, frequent syringings or waterings through a fine rose will be the soundest policy for a week or two. See that climbers and all plants of rambling habit have due attention in regard to stopping, water, &c. Camellias forced into wood should have a trifling check as soon as the young leaves have attained their full size; this is best accomplished by diminishing the supply of water at the roots. Continue, however, to shade and syringe morning and evening. In the mixed greenhouses I presume the existence of a climate somewhat in advance of the cool greenhouse—that is, a house in which artificial heat only sufficient to repel frost is maintained. By keeping one end of such a house (the end where the hot-water piping or smoke flue enters) closer, using more atmospheric moisture, and at the same time a greater amount of air at the other end, it is not by any means impossible

for the amateur to indulge in many of the luxuries of larger establishments. Repot and propagate Begonias. This is one of the most useful families of plants that can be grown. Any attention which will serve to prolong the beauty of the Azaleas, New Holland, and other plants, with which the show house should now be gay, will be well bestowed, as when these are over it will in most cases be impossible to furnish the house with equally handsome specimens and the same variety of colours, which these afford. Also, carefully examine the plants in the forenoon of bright days, and see that none of them are suffering from want of water; for with bright sunshine, accompanied with drying winds, it will be no easy matter to properly supply plants with water, particularly specimens which may be pot-bound. In ventilating, endeavour while parching winds prevail to avoid allowing currents to blow through the house, especially near recently-potted plants, or plants recently brought from the stove. Orange trees in middling health which, owing to the neglect with which they are generally treated, is too commonly the case, will require attention to prevent the young leaves being eaten up by red spider. The readiest and most effectual method of clearing them of this pest is to lay the plants on their sides and well wash the under sides of the leaves with the engine, but unless the trees be kept in health this will be but a partial cure.

## STOVE.

Many of the Orchids, being now in active growth, will require careful shading to protect the tender foliage from the direct rays of the sun, and to keep down the temperature without admitting currents of air which, during the present state of the weather, would render the atmosphere altogether unsuitable for them. Keep the atmosphere as moist as possible, by frequently sprinkling every available surface, and shut up the house early in the afternoon after syringing, giving the plants a good steaming.

## COLD PITTS AND FRAMES.

These will now come now with some of the early-struck or potted-off cuttings hardening for the flower garden. Any spare room may be occupied with the thinnings of the other plant houses.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

*Parsley*.—Sowed the main piece of this, as we like to have it in by the middle of April. We generally sow on a tree border so shaded that scarcely anything else would grow, and in such positions it generally stands better in winter than where more fully exposed. A month or six weeks later we generally sow in a more exposed place, and where a little protection can be given, and about the middle or end of June we sow a line in the orchard house to render us independent of frost and snow in winter.

Sowed also successions of Radishes, Turnips, and Lettuces, drawing shallow drills for the seed with a pointed stick, and covering with the back of a rake. The ground for the Parsley was rather rough, and, therefore, the drills were filled up, or nearly so, with light sandy soil.

## FRUIT GARDEN.

Finished pruning, though not nailing; so there were will be better weather for the latter.

*Forced Strawberries*.—Put out some rows, planting the balls whole, with a little rotten dung round them. When good crops are to be had in the autumn, the plants should be turned out in this month and the first fortnight of May. For several years we scarcely had ours out in time enough, owing to a press of work waiting to be attended to. We were among the first to turn forced plants to this purpose, and to state that even if they bore in the autumn, no other system of planting would be likely to yield such crops the following summer. We can recollect a very able writer on agricultural chemistry and other sciences being quite unable to account for forced plants bearing in the autumn, and yet bearing so profusely the following season. We can only state the facts, but we fear we should fail in endeavouring to give satisfactory reasons. We never saw better autumn crops than Mr. Cadger, of Luton Hoe, had last season. Two facts more may here be stated. First, forced plants, when turned out late, will do no good as respects autumn fruiting, but they will fruit the following season as young plants will very rarely do. The second fact is, that the first crop from such plants is generally the only extra one. The second season the crop will generally be tolerably good, but in the third season it will be inferior. Such plants should be

used, therefore, chiefly for the first summer's crop after planting them out.

A few days at the end of the week were so bright and hot that we sprinkled the roofs of orchard houses with water just coloured with a little whiting—say the size of a walnut dissolved in seven gallons of water, or partly dissolved, so as to give a whitish covering. We have no doubt the trees would have done without it, but the evaporation would have greatly increased, and we began to think of our limited water supply, as much water has been used during the week.

## ORNAMENTAL DEPARTMENT.

We fear the dry weather will put a stop to some changes, turfing, &c. All gardens are constantly requiring changes to be made. At first planting everything cannot be seen, and provided shelter is obtained, it is very easy to make vistas and open spaces afterwards. Many beds and groups, useful at first as backgrounds, become eyesores when there are backgrounds beyond them. The dry burning weather rendered attention to all large transplanted trees and shrubs necessary. A slight covering and the use of the engine over the tops will be more useful than drenching the soil at the roots, as the more water given the more the cold produced by evaporation. Shading and covering fresh-planted shrubs present anything but an ornamental aspect, but then the end so far justifies the means, and, the object seen, the ugliness is so far modified. A lot of temporary screens and protections for plants too tender for the position are quite a different affair. Acclimatising should chiefly be left to large places. In places where space is limited, hardy trees and shrubs should chiefly be depended on. How different the feelings with which we contemplate a healthy Cedar, Pinaster Pine, or Weymouth Pine, and a sickly fine-foliated Mexican Pine, or even an *Araucaria* that has lost so many of its lower branches as to become broom-headed instead of having healthy branches sweeping the ground.

A good opportunity is now given for sowing *hardy annuals*, not forgetting the useful Sweet Pea. In all such sowings, two things are essential. First, sow thinly enough, or thin early enough—the first is the better mode—so as to give the plants space to grow; secondly, cover the seeds in proportion to their size. All small seeds like dust should have only a dust-like covering, and if out of doors they will vegetate all the better if shaded with a pot. For small seeds sown in pots and pans, as those of the *Calceolarias*, *Lobelia*, &c., we find no plan better than making the surface smooth, well watering, allowing the pot to stand until the surface becomes moderately dry; then level, and with a dry finger and thumb, or the point of a knife and a little stick, scatter the seeds equally, press slightly, cover lightly with silver sand, press again, and cover the pot with a square of glass, and the glass with moss or paper, until the seedlings appear, when light and air must be gradually given. If the pots are set in a lamp place, or so that the base can be kept moist, they will seldom want watering before the seedlings appear, and then the water should sail the pot, and not be poured over the young plants.

Amongst other matters we have been busy repairing and altering our *turf or earth pits*, to receive lots of bedding plants. This we should have done a week or two earlier if we could. These pits were made of earth, with a turf along the top, the back being considerably higher than the front. In the course of years, from adding fresh material, the pits were becoming too shallow, and the walls were getting rather uneven from the visits of rabbits and mice. The surface turf at the back was unrolled, soil taken from the front inside, so as to raise the back from 4 to 6 inches, and the wall being made straight, the turf was replaced. The bed inside being dug over, we have the bed considerably lower than it was, in proportion to the earth walls, which will give more room to *Calceolarias* and other plants. These pits are generally used for something all the season, and therefore in turning out the bedding plants, as *Calceolarias* and *Pelargoniums*, we find they thrive better and lift better, if each row as planted has a little compost added before watering and firming them; this compost being made of rough riddled leaf mould, a little exhausted mushroom dung, and some fresh rather sandy loam. We are late enough with the *Calceolarias*, which are strong plants, requiring more room, for they are standing where they were put in as cuttings in the end of October. We may mention as an element of success, and for saving labour, that in planting the rows of such plants, when firming with a little fresh material round them, and before the little trench is filled, the plants are well watered, and then the dry earth is put on the surface, and the next row made ready and treated in the same way.—R. F.



should be removed to a shelf in the greenhouse and potted if necessary; but if they are not growing very freely it is well not to repeat at that period of the year. The drainage of the pots should be good, and the corn covered from one-half to three-quarters of an inch. In potting, the roots should not be disturbed; it is sufficient to remove the drainage and the old soil. Water ought not to be given until the soil becomes dry, and yet the foliage must not suffer from want of moisture.

GARDENERS' AFRONS (R. E.).—See page 212.

DWARF PEAS FOR PRESENT SOWING, &c. (R. H.).—The best dwarf Pea for present sowing is Bishop's Long-podded. There is no necessity for watering Peas now, as the weather becomes hotter and the ground drier. To insure speedy germination it is a good plan to water where lawn grass seeds have been sown on a patchy lawn, but if the weather be moist it is not necessary. It would be best to scatter the ashes over the Onion and Carrot beds before the plants come up.

GROWING FANSIES IN A GREENHOUSE (*Hopeful Amateur*).—The plants will not succeed so well in a greenhouse as they would in a cold frame, but by keeping them near the front lights as you propose, and with abundance of air day and night, they will no doubt succeed tolerably well. The plants must not be trained over wire trellises. You will or ought to be disappointed. We have no doubt that the Essay would submit to it, but it ought to be discontenanced.

VERBENA CULTURE (*Life and Learn*).—The best soil manure for Verbenas is old cow dung. Two-fifths of fibrous loam, one-fifth of leaf soil, one-fifth of old cow dung, and one-fifth of sharp sand will grow them well. They are best grown on flat trellises on which, when fully grown, they will be highest in the centre owing to the shoots that come from the base being strongest. They are best grown in cold frames, as they can then be protected from heavy frosts.

ROSES FOR ARCADES (*Idem*).—Deferring pruning the standard Rose trees for blooming at the end of August until May; therefore you will need to leave them as they are with their shoots at full length, and the flower coming. The first and second shoots will have the sap, and the lowest two or three buds of each shoot may remain dormant. At the beginning of May cut the shoots back to within two or three buds of their base, and the plants will bloom late. But it may be necessary to retard them, which can be done by placing a netting placed over them by day in very hot, dry, bright weather, removing it at night.

PLANTS FOR A WINDOW (*S. A. L. D. 13*).—For a window facing the south we should advise *Fuchsias*, *Pelargoniums*, and *Petunias* for summer; in winter they would not succeed, but you could accommodate them with a window in the room from which they are desired. In winter we would grow such bulbous plants as *Hyanthids*, *Narcissuses*, and *Tulips*, which would flower in spring.

GLORIANA SEEDLINGS (*A Content Reader*).—The plants should be continued in a hotbed, and the soil kept at the surface of a glass with a temperature of from 60° to 65° at night, and from 70° to 75° by day, with a rise to 80° or 85° with sun and abundance of air. They are the better of being grown in a slightly shaded position, and the shade of Vines is very agreeable to them, and the plants will grow better when they are placed in their blooming pots. Confine them, therefore, in the hotbed, and keep the soil moist, but avoid making it very wet; and when they can be taken hold of about the middle of June, plant them in pots filled with a well-mixed compost of equal parts of fibrous light loam, and peat, or of old cow dung, and a fourth part of silver sand. Keep them moist and shaded from bright sun, and when the pots are filled with roots shift the plants into others a size larger, and plant them in 4-inch pots, and finally into one 6-inch pot in diameter, which will be ready for planting in blooming. With a moist atmosphere and good heat the plants will bloom in autumn. After flowering keep them dry, giving no more water than enough to prevent the leaves from flagging, and in November withhold it altogether, the pots being set on a dry sawdust bed, when the soil moisture rises to keep the bulbs from shrivelling. A temperature of between 50° and 55° is suitable in winter.

CANNA SEEDS GERMINATING (*Idem*).—It would be difficult to say how long the seed will be in germinating, but if it be sown in a hotbed of from 70° to 75°, the plants ought to be up in three weeks. It is well to soak the seeds in water at a temperature of from 120° to 125° for twelve hours before sowing, and then to sow in light soil on a gentle hotbed, where the seedlings should be continued until potted off singly when they show the second leaf; and keep them in heat until they are established and have grown considerably, then harden them off and plant them out in June. They will afford some fine leaves this season.

FRASER'S PLANTS (*Idem*).—A pipe uncovered along the front and above the surface of the bed for top heat, and another beneath the bed for bottom heat, would answer well, and the frame would be suitable for bedding plants in winter.

WATERING VINES WITH LIQUID MANURE (*Idem*).—You may water the border with liquid manure as the berries are set, and so on until they are not before; and as the border is outside it ought not to be given except in dry weather, and not after the Grapes change colour for ripening. It would be well to have the water 2° warmer than the soil; 70° will be too high a temperature at night; one of from 60° to 65° will be better, with a rise of 5° by day without sun, and from 10° to 20° with sun and air.

POTTED SBRUETUS CALCEOLARIAS (*Idem*).—The plants, we presume, are now in small pots, but of good size. Put them, say into 7-inch pots, draining well, and using a compost of two parts loam from a cold frame, one part old cow dung, well-decomposed manure, or leaf soil, with a free admixture of sharp sand. Place them in a cold frame or pit, and water so as to keep the soil moist, giving a sprinkling overhead every morning and evening in bright weather. One of from 6 to 8 inches will grow the plants to 9-inch pots, stopping any irregular growths up to within six weeks of the time at which they are to flower. The shoots should be tied out so as to produce a number of evenly-formed plants. After May the lights may be drawn down, and afford partial shade during the day, with a copious supply of water.

CYANOTHIUM MAGNIFICUM AND CYANOTHIUM COMPOSITUM (*Idem*).—Two parts fibrous loam, one part sandy fibrous peat, one part old cow dung, or one part leaf soil, with one part of charcoal in pie from the size of a pea to that of a hazel nut, and one part of silver sand will grow both well. Good drainage is necessary. The loam and peat should be torn to pieces, and the whole of the compost well mixed but not sifted.

LOW TEMPERATURES (*Idem*).—We have made inquiries, and have no reason to believe them incorrect.

BROOM FOR GAME COVERT (W. B. B.).—The ground should be brought to a fine surface by first ploughing, then harrowing, and using a chisel-drummer if necessary; then sow at the rate of 20 lbs. of seed per acre for a thick covert, and in an exposed situation; but for a sheltered position from 12 to 14 lbs. per acre will be sufficient. It ought to be sown now, giving a light harrowing afterwards, and a rolling, if rough, with a wooden roller. Broom does best in a rather light sandy soil, but will succeed in almost all soils and situations, except un drained ground.

VARIETIES (C. A. T.).—Point the line of the dish with whitening and a little size in the water. See also, "Doings of the Last Week" to-day. Lime water may be made by putting a spadeful of fresh lime into about fifty gallons of water, to be stirred well, allowed to remain twenty-four hours, and used when clearly settled. You will have seen what was said in our columns about the lawn now.

NAMES OF PLANTS (W. B.).—We cannot name plants from their leaves only.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### ANNALS OF MY POULTRY-YARD.—No. 2.

I was so encouraged by the success of my first year's experiment in poultry, as stated in last week's paper, that, like the gambler, whom one "lucky hit" only urges to plunge deeper, I began dabbling more amongst the feathers with a stock of fourteen head. These consisted of seven mixed *Hamburgh* hens, two *Cochin-Chins* hens, two *Dorking* hens, and two *Hamburgh* cocks. I obtained from these, during the first half of the year, an average of thirty-six eggs per week, each being a fair quantity; but my average in the latter part of the year dwindled down most sadly to fourteen a week. Much time was taken up with twelve hatches of chickens, doubtless; but the real solution is contained in a footnote. "I had disease amongst my poultry." There was, I well remember, a long-continued wet season, and nearly all my stock had the "blacks" or "snuffles"—in fact, a running cold in the head. I had not then an out-door protection for them, which I subsequently made—viz., a small shed cut into the slope of a south bank, roofed with old pea-sticks and fern. This little place, of not more than 6 feet by 4, was a great refuge from north winds and rain; for the back and sides, being cut in the solid earth, admitted no draughts. In summer, with a few inches of sand and wood ashes, it was always a favourite bath. I reared only sixty-five chickens to maturity out of all my twelve sittings; for besides the ordinary ailments and accidents which annually carry off a large number of chickens when very young, a most carnivorous pig made great havoc. On one occasion he waited quietly in his den till four inquisitive youngsters had crept well into his enclosure, and then mercilessly slew them all. In spite of all these disasters, my Dr. and Cr. account—without any charge for labour, rent, taxes, fuel, &c., which I never lay to the charge of poultry—presented a respectable appearance.

	Dr.	£ s. d.		Cr.	£ s. d.
14—Stock of poultry at beginning of year, valued at 14.6d. each	1	0	140 Chickens killed, at 1.6d. 3	0	0
2 <i>Hamburghs</i> bought	0	3	339 Eggs at 1s. a-shilling,		
20 lbs. of Indian corn	0	9	less 170 used for sitting 3	15	4
70 lbs. of wheat	0	5	11 Pullets sold at 1s. 6d.	0	15
Medicine	0	2	3 Old stock killed off	0	3
1 sack of oatmeal	1	10	13—Stock of poultry in hand at end of year, valued at 1s. 6d. each	1	8
10 lbs. of malt	0	2			
		£3 10			
Profit		6	0		
		£9 12 4			£9 12 4

In one year my profits came rapidly down from nearly 50 per cent. to under 200 per cent., owing to the disease in the latter part of the year, the voracious pig, and the following reasons:—Whereas, in the previous year seven hens contributed to the support of one cock, this year only twelve hens had to support two cocks. In fact, a note reminds me that one hen, though handsome and showy, was barren and never laid an egg. Later in the year, while hoping for an improvement, she began to crow and assume the plumage, in part, of a cock bird. This, of course, threw the maintenance of three unproductive birds on the remaining eleven. The value of the four little things devoured is slight, one may say; but the three weeks of sitting, and six weeks of rearing, were simply time unprofitably spent, for the four were the entire brood! These facts explain, in a great measure, the rapid diminution of profits. The increase of food will explain the remainder.—W. B. B. H.

### THE DRAGOON PIGEON.

FOLLOWING upon our descriptions and portraits of prize Antwerps and Carriers, we now have the satisfaction of calling

the attention of Pigeon fanciers to a description and portrait of a standard Dragoon. The letterpress is from, as will be observed, two distinct yet equally reliable sources. Thus by being able, by the courtesy of first-class fanciers of each variety, to give the correct points of such variety, we venture to think we shall be conferring a benefit upon the fancy generally. Of recent years it has given us pleasure to insert at large communications upon many Pigeons, and we hope still to do the same.

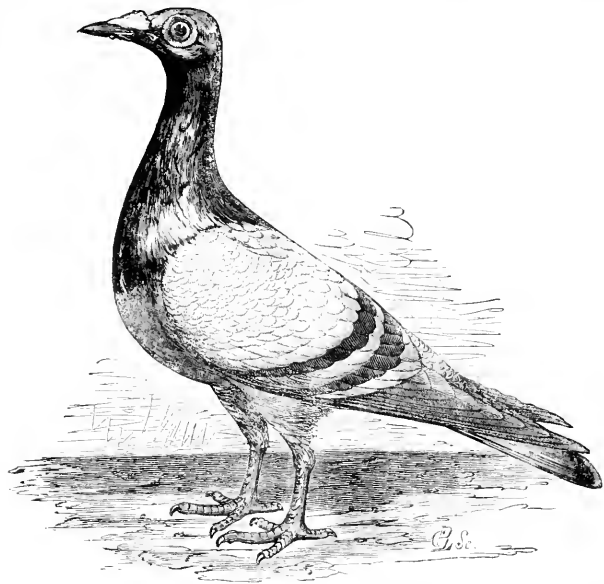
Without further preface we will proceed to the description of the standard Dragoon sent us by the Birmingham Columbian Society, whose members state that they "are pleased to find that the portrait of the 'standard Antwerp,' which appeared in your Journal of February 17th, seems to have given general satisfaction. It has, unquestionably, supplied a want which had for some time been apparent to most Pigeon fanciers. As inquiries have since been made for a portrait of a 'show Dragoon,' we gladly give our ideas as to what constitutes a

perfect bird of this variety, and in doing so must add that we have been for a long time past quite conscious that, like the Antwerp, a standard has become necessary.

"The accompanying engraving is a portrait of a Blue Dragoon hen, four years old, of great merit, the winner of many prizes, and a breeder of wonderful stock, which has been expressly selected to be portrayed for publication in your Journal.

"In giving our opinions upon the show Dragoon, we would first say that those opinions have not been hastily arrived at. Several of us have been breeders of this variety almost exclusively for many years; therefore, from our great experience and frequent discussion upon the especial and general characteristics of this breed, our views may be deemed of some value to those who seek such information.

"There are in Dragoons five acknowledged colours—Blue, Silver, Red, Yellow, and White. The first and last named are the most numerous classes; but in speaking of all the colours



we do not wish to show a preference for any one kind, but to advocate the claims of all collectively, and to further describe the chief points of difference separately.

"One chief object, and also the great difficulty, especially to the uninitiated, is in severing them from their allies, the Carriers, whose name must inevitably crop out when describing Dragoons; but let it be understood there is, and should be, a marked difference between the matured birds of each; yet notwithstanding this difference, the young Carrier is often very improperly placed in competition with the Dragoon, and too frequently gentlemen who are called upon to adjudicate at some of our shows appear so perplexed by the comparison, that they are occasionally beguiled into the error of placing young Carriers upon the prize list in the Dragoon class, which is rather discouraging to those who have from time to time pointed out in what particulars the great dissimilarity exists.

"Dragoons should not be large birds, but of moderate size, neat, and compact in form; light in feather; have sharp-pointed wings; be broad in shoulder, with butts well displayed, and narrow-rumped. The head should be long and straight; skull narrow, well developed at the back. The eye should be large and prominent; the lash, cere, or flesh wattle, uniform, equal, white, and circular, with but little of it. The wart upon the beak should be small, and not overhanging. The

neck should be long, slender, and graceful; the carriage erect; the legs long, clean, and angular; the feet large. The general bearing of these birds is of a timid, tremulous kind, invariably displaying a shaking and nervous temperament. The Blues, Silvers, and Whites, are prolific birds, good nurses, and are swift and good flying Pigeons; but this cannot be said of their brethren the Reds and Yellows, whose constitution seems to have suffered by close breeding, in order not only to perfect, but to keep pure, their beautiful uniform colour, and in consequence they are not to be trusted from home, otherwise they will probably be lost.

"These are our compressed views of the essential points of show Dragoons collectively. Taking them separately, they may be described thus—

"BLUE DRAGOONS should be of a good sound colour upon the sides of the wings, head, belly, thighs, back, and tail. The head is generally of rather a darker hue; the neck also dark, and gorgeously illuminated with bright iridescent colours, and terminating in a distinct and circular line upon the shoulders, breast, and back, thereby producing a pleasing contrast with the lighter and less brilliant parts of the body; the lower extremity of the wing coverts have two narrow and jet black bars, running obliquely, and terminating just above the thigh; the tail, also, has a band of black about an inch wide,

and within a quarter of an inch of its end; the flight feathers are dark. The beak also must be dark; the eye of a bright red colour; the legs and feet red, and with dark nails.

"SILVERS are frequently bred from and crossed with Blues, but it is better not to do so, for, as a consequence, too often the produce of such a mixture is a muddle of both, resulting chiefly in the production of birds of a silver colour, with black bars and dark flights, which are, therefore, not regarded as Silvers, but are looked upon as washed-out Blues. True Silvers may be simply described as follows:—Their colour is a sort of white-brown, or very light drab, with darker drab bars, neck, and flights; they should have light horny bills and nails; the hackle is not so beautifully resplendent as in the Blues, the iridescence being greatly diminished by the drab tint of which their colour consists. The eyes of this variety partake of a rich pearl-like kind, without a particle of yellow observable in them. They are a very attractive variety, and good specimens are very scarce, more especially cock birds.

"YELLOWS are rather a scarce variety, as they are difficult to breed pure in colour, and good in shape as well, for with close breeding they are sure to degenerate, or if fresh blood is infused they will as surely show the white feather, or the slaty rump or thigh; therefore, they are by no means numerous. Good Yellows should be of an entirely uniform colour, and not yellow as their name signifies, but of a rich sienna brown; the eye should be of a bright red colour; the beak flesh-coloured (pinkish white). In other respects they should answer the general description of a Dragoon, but in one or two points they often differ, being generally coarser in wattle and broader in skull, two points which materially detract from their otherwise admirable appearance. As before said, birds of this variety are not usually good breeders; their young are very delicate and difficult to rear. The eyes of the young ones of this variety present a singular appearance when about a fortnight old, being of a transparent pink colour, but they gradually change until the birds are full fledged, when they soon assume the usual colour.

"NEES, like the Yellows, are scarce, and still more difficult to obtain of a good rich colour. They are generally tinged with blue upon the rump, belly, and thighs; the beak should be darkish; the eyes bright red. There are some, although few, excellent specimens of this kind, which are very beautiful, and ought to be prized, the neck, like that of the Archangel, being beautifully enlivened with a rich copper bronze, which adds greatly to its appearance.

"WHITES are very beautiful and very numerous, but perfect specimens are scarce. They should be pure white; have dark eyes, with white lash; with white beak and nails. Indeed, they should be quite colourless. Any colour upon them, with the exception of their legs, amounts to a disqualification. This variety is not so extensively kept, from the fact that they are so difficult to keep clean."

The foregoing was sent to us whilst we were asking Mr. Jones Percival to favour us with his opinions. Most readily he met our wishes, and furnished us with a portrait of one of his prize Dragons, but we found that we had no right to publish it, as it had been prepared and issued by our sporting contemporary. At the same time Mr. Percival sent us his opinions of the characteristics of a perfect Dragoon, and these, from one so celebrated as a breeder of the variety, must not be withheld, and it is highly satisfactory that they so agree with the opinions of the Birmingham Society.

"This bird, I agree with Moore, was originally bred from a cross between the Horseman and Tumbler, although it has for a considerable period become a distinct breed, promising properties which it would take many pairs to produce. The weight of a Dragoon should be about 1 lb., the colour of a darkish or slaty blue, with a bronze black bar; the rump also blue, the white rump being in my opinion one of the greatest defects. The length of face from the inner part of the eye to the tip of the beak should be 1½ inch, with the beak wattle well tilted, the beak black and ebony-like, the wattle round the eye perfectly circular and dark-coloured, a pink-looking wattle being decidedly objectionable. Some fanciers contend that a Dragoon should be pink-eyed—that is, that the wattle should not be circular, but that there should be a much larger proportion of wattle at the front and top of the eye than at the back. This opinion I hold to be a very erroneous one. What would be said of a Carrier, however good in other respects, if it were pink-eyed? and if a defect in a Carrier, why not in a Dragoon, which certainly approaches nearer to the Carrier in properties than any other Pigeon? The head should be narrow,

with the beak a little curved, a long neck, broad and prominent shoulders, and altogether of a racy or Game cock-like appearance.—J. PERCIVAL."

Thus we have been able to give from two valuable sources the characteristics of a standard Dragoon. Mr. Percival's opinion is, indeed, that of one fancier; but it must be remembered that he has taken prizes at the chief shows in the country for the last nine years, with his strains, with the further result of selling them at prices varying from £3 to £9 per pair. We think the description of the Dragoon given by the Birmingham Columbarian Society is very excellent, save that justice is scarcely done to the beautiful silver colour, by calling it "drab," drab giving the idea of the bird being dark; silver is silver and nothing else, and to be known must be seen.

## POULTRY AND PIGEON COMPETITIONS

This season of the year, before our poultry and Pigeon shows begin, seems to be a very appropriate time to make comments on the various practices of exhibitors, committees, and judges. Having taken an active part for a long time in the management of one of our leading shows, being a member of committee, as well as an annual exhibitor only at our local competition, I hold, perhaps, an exceptional opinion as regards the incentive to trimming to win. It is very clear to me that judges, as a rule, put too much stress upon a foul feather, and too readily pass over a magnificent specimen having this faulty defect; consequently there is a great temptation to pluck the objectionable feather. Insert the wedge, and we know how easy it is to go on from pulling out a single feather to making a perfect pougeon throughout. If judges would only fairly balance such a defect with other properties, all would be right. How often have I seen by far the finest specimen in a class thrown on one side—that is, passed over for a fault that could not be detected except by the keen eye and close examination of a judge, and which could be very easily remedied.

Another remark I would make with all due deference to the gentlemen who so kindly officiate for us as judges. I have too often seen extra good specimens acknowledged to be first-prize birds disqualified—that is, passed over silently, on account of some mark on a feather, or something seen on a bird, that might indicate the ownership. Now some of our most conscientious judges unhesitatingly disqualify such pens. Does not this seem absurd if they are certain that such marks could not be put for them to know; or even if they did, should it make any difference in their judgment? Can anyone doubt for a moment, that gentlemen who are called upon to act pretty often during the season do not know the principal prize birds without any private marks? Surely these gentlemen, who are known and acknowledged to be the most honourable of men, do not require to give this proof of their integrity to the committee. We want to know and see the finest specimens in their respective classes, and in looking over the pens find a first-prize card on a third or fourth-rate bird, whilst in our humble judgment we see a truly grand bird in the next pen, perhaps with no notice whatever—we look in vain to find out how the judges could have made such a mistake, when it turns out a nick had been seen in one of the wing feathers, or a thread was round the bird's leg. If it is necessary to disqualify such pens on this account, I would suggest that the prizes should not be awarded to inferior birds, but withheld by the committee until they were satisfied as to the intentions of the exhibitor.

Another incentive to trimming is the increasing prize money that is offered. There seems to be no satiating the craving of large exhibitors for the money prizes; medals and cups are now discarded for the value in money, and these large commercial speculators calculate their chances of gain to a nicety—having a host of birds of all sorts, taking the circuit as systematically and regularly as any merchant or manufacturer might do. We find them exhibiting at several shows at the same time.

I also observe this class of exhibitors are those who are crying out about it being unfair for local committees and secretaries to exhibit at their own shows; that ten per cent. on the prize money should be the utmost entrance fee; that committees should, if they wish for numerous entries, give large money prizes, &c. I could name a few such exhibitors who have been known to show unfairly repeatedly, and acknowledge so doing unblushingly; and more than once I have known the dishonest pens claimed, and the unfortunate purchaser exhibiting his newly-obtained treasure in ignorance, and the supposed pair turning out to be two hens or two cocks he has been brought

into disgrace by being exposed through the confession of the very party who sold the birds. Such is the game played by unscrupulous exhibitors.

How this is to be remedied is a vexed question. To reduce the prize money to a nominal sum, and let exhibitors show for honour more than money, would tend to prevent such evil practices, and judges, instead of disqualifying marked pens by passing them over, would give more satisfaction by awarding them the prizes they were entitled to. It would be a dangerous experiment to take the responsibility off the shoulders of the judges, and the present seems to be the only system that could possibly save a society from endless trouble and confusion. It may be better for judges to pass a pen over when in doubt, than the society should run the risk of a law suit by a committee publicly condemning an exhibitor for supposed fraudulent practices. Many instances have come under my notice of young birds of the season having been condemned as old birds, when I knew to the contrary. Had a committee taken up such a case, and roughly handled the owner, what would be the consequence if the owner could prove his entry was correct? I will leave it a question. I think it is better as it is; judges to act to the best of their ability, as I believe the majority of them do in all honour and integrity, but not to disqualify birds that may be outwardly marked by a feather being out, or by a thread, &c., this having nothing to do with the merit of the specimen which is sent to compete, but perhaps necessary for the owner to distinguish his own birds in his own stock. What would a defaulter care to be deprived from showing? His son, or his brother, his wife, or his mother could, and he would still derive the benefit.—DEBS SHOW.

### BREEDING DUCKWING GAME FOWLS.

In breeding Duckwings for exhibition two separate yards, as you state, are necessary.

For COCKS.—A high-coloured, good, willow-legged, Yellow-Duckwing cock, no relative to his hens; hens of the yellow or wheaten-coloured strain, willow legs. And for high colour in the cocks a few yellow-legged wheaten-Duckwing hens are useful, if close in feather and good in shape. Crossing back to the Duckwing original, the Black-breasted Red is, on the whole, bad.

For HENS.—A good willow-legged Silver-Grey Duckwing brood cock is best if obtainable. Hens silvery-blue-grey, willow legs, but a few blue-legged or white-legged Silver-Grey Duckwing hens are often useful in this cross, as giving a more silvery colour and free from brown or yellow wings and similar markings. You can, as you state, seldom breed both cocks and hens fit for exhibition from the same yard or strain. The cock, here, should not be too near in blood to his hens, as in breeding for cocks I would not use Black-breasted Reds at all, as Duckwings are all too prone to breed back to their originals, the Black-breasted Reds.

At most exhibitions I have remarked that in general the cocks' legs are of a yellower willow than the hens' legs, which I attribute to the way in which they are often bred, in the manner I have just described. The Black-breasted cross is troublesome to "breed-out" again, and is not, on the whole, either advantageous or correct.—NEWMARKET.

### MANGOLD WURZEL AS POULTRY FOOD.

I AM astonished that two of your correspondents recommend mangold wurzel as food for fowls, as I always find that if mine can obtain plenty of it, and they cannot always be prevented doing so in a farmyard, their combs turn black, and I lose more or less of them. Fowls are very fond of it, and perhaps it is only when they eat it in excess that it does harm. My fowls are never guilty of feather-eating, as they have what run they like. I should like to know whether others have had the same experience.—A FARMER.

We shall be obliged by information on this subject. We know that the fat of bullocks fed on mangold wurzel is rendered very yellow; and a case occurred in which the fat of Turkeys was similarly affected.—EDS.]

EGGS USED IN PHOTOGRAPHY.—The annual consumption of eggs in photography is nearly a million in the United States alone, while the number used on this side the Atlantic is probably at least three or four times as great. Hence it may be

estimated that not less than five millions of inchoate fowls are sacrificed every year in the production of photographic portraits.—(Photographic News.)

### DRAGOON PIGEONS.

I READ by a letter in your last week's impression that "YOUR CORRESPONDENT," who was so apt at picking to pieces the Dragons I exhibited at Wolverhampton Show, will not accept my challenge. He appears to be under the impression that Blue Dragons are far in advance in points of any other colour; this is evidently another mistake into which "YOUR CORRESPONDENT" has fallen, the first-prize pair of Silvers exhibited by Mr. Percival at the last Birmingham Show being, in the estimation of many excellent judges, equal, if not superior, to any there shown irrespective of colour. Again, "YOUR CORRESPONDENT" offers another opinion equally fallacious when he tells us that a Dragon should have a thin beak, which is not considered correct by those who really are judges of the beautiful birds in question. He says he has bred Dragons for several years; he may have done so and still be a novice.—FRANK GRADHAM, *Birkenhead*.

[Here this controversy must cease.—EDS.]

### NEW BOOK.

*The Handy Book of Bees.* By A. PETTIGREW. Blackwood and Sons, Edinburgh and London.

ANOTHER bee book added to the multitude already before the public lies before us in a neat-looking volume by Mr. Pettigrew, a name long well and favorably known in the annals of apiculture. But why this new bee book? we ask as we open its pages. Solomon says, "There is nothing new under the sun;" so we open it in a critical temper of mind, but are disarmed at once by the avowal in the preface that the author is "a working man;" for who does not gladly welcome everything from the pens of working men of pure spirit, as we hope to find in their deliverances something fresh—fresh in the way of putting things, if not absolutely fresh in matter? And we are not disappointed as we skim the pages of this new book on bees, for it abounds in fresh and vigorous writing; and we see in every page abundant tokens that the author is not only one of those "*qui se passionnent pour les abeilles*," but that in all that relates to their practical management he is thoroughly well informed. Working men will do well to follow him here as a safe guide.

Nevertheless there are some grave faults in this book, and, as might be expected, just where the author has travelled out of the beaten track of his own experience. In his chapter on the natural history of bees there are errors of fact; as, for instance, where he says that if young queens "are not mated before they are ten or twelve days old they are worthless for breeding purposes." Again, the egg-laying of young queens really begins almost always on the second day after the successful wedding flight, although Mr. Pettigrew tells us it does not commence till after "six or ten days" from impregnation. Once more, at page 8, he states as a credible fact that working bees "help the queen to distribute and deposit the eggs in their cells." We have seen bees eat the eggs when laid by a queen bee along the edges of cells at a time when honey superabounded, and there were no empty cells suitable for her purpose, but never saw them carry them off and distribute them, and we require something more than assumption ere we admit so remarkable a statement as fact. To "the sexes of eggs," which, by the way, is a very curious and interesting subject, Mr. Pettigrew devotes about fifteen pages, in which he favours us with a correspondence that passed last autumn between himself and our English Huber, Mr. Woodbury, on the subject. The sum of it is, that while Mr. Woodbury negatives the idea promulgated by Mr. Pettigrew (not now for the first time), that bees' eggs are all of one gender when deposited in the cells, and proves his negation by an appeal to facts, our author reiterates his assertion, but without proof, beyond what may be implied in the vague formula, "I was informed," or in the still more unsatisfactory suggestion of possible experiments. It is, moreover, not a little singular that these very experiments have been anticipated and fully carried out by his supposed ally, Mr. Quinby, who records the fact that they have resulted in the complete refutation of the ideas promulgated by Mr. Pettigrew. It is true he backs up his opinion by quotations from the book of Mr. Quinby, an American author of some repute; but whatever may have been Mr. Quinby's opinions some years back, he has certainly changed or modified them since, because his last edition, published in 1866, altogether omits a good

deal of matter which Mr. Pettigrew quotes in support of his theory from a former edition of the American work: not only so, Mr. Quinby pointedly modifies his original view by re-acting the concluding paragraph on the subject in such a manner that he may be said in fact virtually to have recanted them. The truth is that it has been abundantly demonstrated that bees' eggs when deposited in the cells are of two kinds, fecundated and unfecundated—that the former invariably hatch into females, either perfect or imperfect—i.e., queens or workers, and the latter into males; that all eggs are alike imperfect when they first leave the ovaries of the queen, but that in the case of those eggs which are destined to hatch into female bees, whether they are developed into queens or not, they become fecundated as they pass from a fertilised queen. The perfect mother-bee, however, has alone this power of fecundating eggs, which, indeed, she seems to exercise at will.

We observe that Mr. Pettigrew gives scant praise to the now fashionable Ligurian or Italian Apis bee. He allows it but one meritorious quality, that of beauty, from which, however, he detracts by, let us say, odious comparison with that of the wasp. Herein he differs from the general opinion which prevails among bee-keepers who have really given the Apis ligustica a fair trial. Mr. Quinby is quite as warm in his admiration of its superior qualities as any of his brother bee-keepers, German, English, or American, who in this respect follow the high authority of dear old Virgil, himself a practised bee-keeper. We will venture to say that Mr. Pettigrew knows nothing by full personal experience of this charming and useful bee.

A singular statement occurs at page 47, where Mr. Pettigrew asserts that bees "carry home as much honey as possible during the day, and that during the night they re-swallow it, when it undergoes a thickening process, and thus becomes honey proper." Is this more than a fanciful theory assumed to be fact?

We have thus criticised a portion of Mr. Pettigrew's book, not in an unfriendly spirit, but in the interests of science, which will admit nothing as fact which has not been satisfactorily proven by patient investigation and repeated experiment.

A further notice shall be given upon the second part of the work, which deals with the practical management of the apiary.—B. & W.

(To be continued.)

**BEES IN CALIFORNIA.**—Some of the fruit-growers of California are unjustly very angry with the bees, which they believe destroy their grapes and ripe fruit. These insects, like everything else in this wonderful country, have increased marvellously, and afford a striking instance of the enormous powers of reproduction in animal life when introduced into a genial climate. It is said, and I believe with truth, that before 1853 not a honey bee ever crossed the Sierras to the Pacific Slope. In that year the first hive was introduced, and the bees multiplied so rapidly that bee-producing soon ceased to pay. The insects took flight to the mountains and forests, and now the Mexican hunter and the digger Indian can gather their wax and honey for nothing. Bee-culture is mostly conducted in the ordinary rough way, and I could obtain no good information about the products. One man told me that from a new hive he reckoned he took 30 or 40 lbs. of honey, but that his bees swarmed so often that he had given up looking after them. One hive threw off eight or ten swarms every year, and as he had no room or time to bestow on them he let them go.—(Correspondent of *Erzer Gazette*.)

## OUR LETTER BOX.

**ANONYMOUS CORRESPONDENTS (P. C.).**—We know a very great majority of our correspondents; and one chief reason for not signing their real names is that when they do they are liable to be pestered by private communications.

**BARNSTABLE PRIZE LIST (H. Leworthy).**—There cannot be two opinions on this list. It is very imperfect—only one class for Cochins; Malaya are not Indian Game; French varieties all in one class; Poland; any variety; Ducks, Roan and Aylesbury in one class, are such mixtures that no judge could do justice to exhibitors.

**BRABRA COCK LAME (Lame Brabrah).**—As we do not know the amount of injury, nor where it is, we cannot give an opinion as to the probability of recovery. Keep him by himself without any root, and out of sight of all companions.

**BLACK SPANISH WITH FACE DISEASED (W. M.).**—Purge with castor oil; follow it up with Baily's and camphor pills. Wash his face with vinegar and water, and feed entirely on meal and green food till he has recovered.

**CROSSING BRABRAS (Forest Hill).**—Your friend should be put "in darcase vile" before he makes such a blunder as crossing Brabrah with Spanish. We dislike all crosses, but if there is a cross to which we particularly object it is one between natives and non-natives. It destroys the good qualities of both. Keep the Brabrah pure.

**NON-FLYING FOWLS (E. G. M.).**—Cesar and Pompey are very much alike. If the Spanish fly over so will the Hondans. They are sure to prefer the garden because they should not go there. Man and fowls are perfect. A very celebrated "Blue-nose" was asked if he had any idea why his forefathers originally came into North America. He said he had no doubt because "they were wanted in England." Just so, if it were possible to make fowls understand, and you could explain to them they were wished to go into the garden, then they would go the other way. Brabrah or Cochins would suit you very well.

**EGGS TASTING MUSTY (J. E. W.).**—Your fowls must get at something that gives the flavour to the egg. Nothing is more easily influenced in taste than an egg. If anyone would try for experiment's sake, let them feed a fowl on garlic, and the eggs will taste of it; onions the same, must dust the same. The only answer we can therefore give is, that the taste is from without and not from within.

**OVERFATNESS AND ITS CONSEQUENCES (H. J. H.).**—Your Game Bantam pullet which has occasionally laid during this last month, and has twice lately been found lying down, apparently having lost all use of her legs, and moving about on her wings spread out, and gasping, but after a few hours seemed as well as ever, getting up and cackling, and each time laying a soft full-sized egg, is suffering from an inflamed egg-passage, the consequence of overfatness. Give her no corn nor any other hard food, but meal and boiled potatoes, and lettuce leaves.

**Mr. HERR (W. J. K.).**—He died in Feb. All the queries you put have been discussed to former volumes of our Journal.

**QUEEN'S SUPPOSED DEATH (G. E.).**—Blow a few whiffs of smoke under the edges of the hive all round during the middle of a fine day, and then boldly turn it up and examine it. If when the bees are dispersed from the combs by a few more puffs of smoke no brood is visible, the hive is probably queenless, and its inhabitants should be expelled by driving and united to the next stock.

**NEIGHBOUR'S HIVE UNTENDED (J. E. E.).**—We do not think it possible to tenant your unoccupied neighbour's hives and obtain glasses of honey from them by June. We should advise you to have patience and stock them with swarms in the usual way.

**BEES ALL DEAD (D. Stearns).**—Your bees probably died owing to the protracted winter, or they may have dwindled away from the death of their queen. We have ourselves lost one stock under very similar circumstances, and, indeed, never expect to be entirely exempt from occasional casualties of this kind.

## COVENT GARDEN MARKET.—APRIL 20.

We are unable to report a continuance of the improvement we noticed a fortnight ago, the trade generally having fallen off. Large arrivals of foreign goods have had much influence in their particular department. Old Potatoes of choice quality are still in request, notwithstanding the importations of the new from Malta, the West Indies, Lisbon, and France, are now assuming a large bulk; prices varying from 2s. to 4s. per lb.

### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	0	0	0	Mulberries.....	1	0	0	0
Apricots.....	1	0	0	0	Nectarines.....	1	0	0	0
Cherries.....	1	0	0	0	Oranges.....	1	0	0	0
Chestnuts.....	1	0	0	0	Peaches.....	1	0	0	0
Currants.....	1	0	0	0	Pears, kitchen.....	1	0	0	0
Black.....	1	0	0	0	Pears, dessert.....	1	0	0	0
Plums.....	1	0	0	0	Pine Apples.....	1	0	0	0
Filberts.....	1	0	0	0	Pistons.....	1	0	0	0
Cobs.....	1	0	0	0	Quinces.....	1	0	0	0
Gooseberries.....	1	0	0	0	Raspberries.....	1	0	0	0
Grapes, Hothouse.....	1	0	0	0	Strawberries.....	1	0	0	0
Lemons.....	1	0	0	0	Walnuts.....	1	0	0	0
Melons.....	1	0	0	0					

### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	1	0	0	0	Leeks.....	1	0	0	0
Asparagus.....	1	0	0	0	Lettuce.....	1	0	0	0
Beans, Kidney.....	1	0	0	0	Mushrooms.....	1	0	0	0
Broad.....	1	0	0	0	Nasturtium.....	1	0	0	0
Beet, Red.....	1	0	0	0	Onions & Cress.....	1	0	0	0
Broccoli.....	1	0	0	0	Parsnips.....	1	0	0	0
Brussels Sprouts.....	1	0	0	0	Parsley.....	1	0	0	0
Cabbage.....	1	0	0	0	Pea.....	1	0	0	0
Cauliflower.....	1	0	0	0	Potatoes.....	1	0	0	0
Capsicums.....	1	0	0	0	Peas.....	1	0	0	0
Carrots.....	1	0	0	0	Radishes.....	1	0	0	0
Califlower.....	1	0	0	0	Rhubarb.....	1	0	0	0
Celery.....	1	0	0	0	Savoy.....	1	0	0	0
Corn-cobs.....	1	0	0	0	Sea-kale.....	1	0	0	0
Cucumbers.....	1	0	0	0	Shallots.....	1	0	0	0
Endive.....	1	0	0	0	Spinach.....	1	0	0	0
Fennel.....	1	0	0	0	Tomatoes.....	1	0	0	0
Garlic.....	1	0	0	0	Turnips.....	1	0	0	0
Herbs.....	1	0	0	0	Vegetable Marrows.....	1	0	0	0
Horsedish.....	1	0	0	0					

## POULTRY MARKET.—APRIL 20.

HOLIDAY TIMES and Brighton reviews interfere with all supplies that come from Sussex, and render reliable quotations very difficult.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls.....	4	0	4	6	Partridges.....	0	0	0	0
Smaller ditto.....	3	6	4	0	Guinea Fowls.....	2	6	3	0
Chickens.....	6	0	7	0	Geese.....	0	0	0	0
Goosings.....	6	0	7	0	Hens.....	0	0	0	0
Turkeys.....	0	0	0	0	Rabbits.....	1	5	1	6
Duckings.....	3	6	4	0	Wild ditto.....	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 28—MAY 4, 1870.	Average Temperature near London.			Rain in last 43 years.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock after Sun.		Day of Year.
			Day.	Night.	Mean.	Dava.	m. h.	m. h.	m. h.	m. h.	m. h.	m. h.	m. h.	Dava.	m. h.	m. a.	m. s.	
28	Th	Royal Botanic Society's Show closes.	60.8	35.7	48.2	18	41 af 4	16 af 7	25 af 4	46 af 4	49	5	28	27	2	38	118	
29	F	Anniversary Meeting of Zoological Society, (1 p.m.)	61.5	37.5	49.0	15	39	4	17	7	43	4	49	28	2	47	119	
30	S		61.0	39.1	50.1	17	37	4	19	7	2	5	55	6	2	55	120	
1	SUN	2 SUNDAY AFTER EASTER.	61.4	39.2	50.3	16	35	4	21	7	23	5	1	1	3	3	121	
2	M	Meeting of Entomological Society, 7 p.m.	62.7	39.1	50.9	15	33	4	23	7	45	5	7	9	2	3	122	
3	Tu		62.4	42.2	52.3	20	31	4	24	7	14	6	10	10	3	3	123	
4	W	Royal Horticultural Society, Fruit, Floral, [and General Meeting]	62.4	38.5	50.5	16	29	4	26	7	48	6	9	11	4	3	124	

From observations taken near London during the last forty-three years, the average day temperature of the week is 61.6°; and its night temperature 38.7°. The greatest heat was 81°, on the 23th, 1849; and the lowest cold 15°, on the 23th, 1861. The greatest fall of rain was 0.75 inch.

BEDDING PELARGONIUMS.



CONTINUING my remarks on bedding Pelargoniums (see page 273), I will begin with the darker kinds, as Waltham Seedling, International, Eclet, Le Grand, Bayard, and Black Dwarf.

Of these Waltham Seedling is to my mind still the best, and quite a type of what a bedding Pelargonium ought to be. It is dwarf, of free habit, has a large truss, with a stiff footstalk, and throws its dark crimson flowers

well above the foliage. I do not like any Pelargonium that grows coarse with good treatment, and my own experience is much in favour of dwarf Nosegays, which will stand good soil. It is certainly a mistake to have to starve a plant into flowering, and much as I admire as pot plants many of the Zonal Pelargoniums, for instance, Clipper, Dr. Lindley, William Underwood, Rival, and that much-overrated one Lord Derby, yet, in spite of incurring the censure of florists, I do not think they are so good for bedding purposes as the Nosegays; and I venture to predict the time will come, now that the breed of Nosegays is so much improved, that very few of the true Zonals will be used as bedders.

Le Grand is very good, with a fine truss, but inclined to be too strong a grower. Eclet has a still finer truss than Le Grand, and International is of a very fine distinct colour, but, I think, will not be so free a bloomer as either of the above; and I have not given Eclet and International a sufficient trial.

Bayard I have received from Mr. Pearson, and I have a good stock of it this year, but I question whether it is so good as Waltham Seedling, as the truss is not so large, though it is a rich crimson, and a free bloomer. Another very promising variety which I have for trial this year is R. K. Bowley; it has certainly in a pot one of the finest trusses and the most vivid crimson colour I have yet seen, and, I believe, has received a first-class certificate from the Royal Horticultural Society.

Next comes the Scarlet section, as Cybister, Lady Constance Grosvenor, Multiflorum, &c.

I discard, to begin with, all the Zonal Scarlets, as Clipper, Dr. Lindley, &c., as having too upright a habit, and hardly ever branching, unless they are constantly pinched back; besides which I have never seen any that would equally well stand both dry weather and wet weather. I still think Cybister, though rather too coarse a grower, one of the very best, as it always blooms freely in proportion to its growth, and though in some places it may grow too tall, it never looks all leaf as Punch and others of that class. Lady Constance Grosvenor has beautiful foliage and habit, but it is a late bloomer, and the flower-stalks are not strong enough, so that the flowers are apt to straggle about the bed, much the same as with Black Dwarf. Multiflorum is a great favourite of mine, dwarf, with a branching habit, and very free-blooming; the truss is not, however, quite large enough, though the individual blooms being so fine help to make up for this.

The next section includes such as Lord Palmerston, Duchess of Sutherland, Mrs. Laing, Godfrey, Grand Duke, &c.

Of these I am afraid Lord Palmerston has had its day; for though a very fine free bloomer, still its footstalk is too slender, and the heads of bloom are apt to be dashed about with rain, and look badly in wet weather. Duchess of Sutherland is a free-blooming sort, of a soft pleasing shade of colour more nearly approaching cerise, but not quite stiff enough in the footstalk. Godfrey has more orange in the flower than the above, with a very fine truss, is a free bloomer, and, I think, promises exceedingly well. I see it is one of those which are reported favourably of at Chiswick, without actually getting a first class certificate, Mrs. Lane approaches more to a true red, much like King of the Nosegays, and both of them are worthy of further trial, but I had not quite enough of them last year to decide upon their merits. Grand Duke is one of the finest and most promising of the large-flowered Nosegays, with one of the largest trusses I have ever yet seen, and well thrown up above the foliage. It may prove too strong a grower, but the truss is so fine that it will always, I think, have sufficient bloom, but I had not enough of it last year to make a separate bed of it.

Among the Red Zonals which I bedded last year were William Underwood, Miss Martin, Herald of Spring, and Roi d'Italie.

Of these William Underwood, one of the seedlings of Mr. Pearson, of Chilwell, was the best, and at one time made a very good bed indeed, but as the season advanced it became too leggy and upright; still, I can strongly recommend it to anyone who has light soil. Roi d'Italie has a very fine individual flower and a dwarf habit, but the truss is not large enough. Miss Martin does not stand dry weather, and grows too coarse in wet. The same may be said of Herald of Spring; in fact, as I have before stated, though I have tried a great many Zonals, I have never found one that came fully up to my standard of perfection as a bedder.

The next section I come to are the Nosegays of the cerise and violet cerise shades, as Amy Hogg, Violet Hill, &c.

By far the best of them, and the best bedder I have yet seen in any section, is Violet Hill. It is of very dwarf, spreading, and short-jointed habit, has large compact trusses, and is very free blooming; it requires only good soil and good treatment, when it will well repay all trouble. It is so dwarf and short-jointed that it is difficult to obtain a stock of it, and it is not, consequently, a favourite among nurserymen, so that it has hardly found a place in many catalogues; in fact, though I have now tried it for four years, I have had so many demands for cuttings that I have not more than eighty or ninety plants of it, and have saved every old plant. I put it out in full bloom in May last year, and it continued in flower till the winter frosts compelled me to take it up out of the ground. At the time of our annual flower show (July 27th), it was remarked by every gardener who saw it, and by many who asked me for the name of it, but they have been since

disappointed in not being able to get from the nurserymen as many plants as they wanted.

Next comes Amy Hogg, a very free bloomer and of good habit, but rather too leggy in the footstalk. Dr. Hogg is, in my opinion, an improvement on the former, with more of a violet shade, and one of the most lovely flowers to look at individually I have ever seen. I am almost afraid, however, it will prove too strong a grower in many places. Indian Yellow, also a seedling of Mr. Baston's, will come next, though not strictly belonging to this section; it has a peculiar shade of colour blended with the cerise, and the name Indian Yellow is rather apt to mislead, except with those who call the darker chrome yellow No. 3 Indian yellow; but there is not really so much yellow in the flower as in the Orange section. It is a very valuable bedder, as being a very free bloomer, with a good habit, and offering a very distinct colour in a bed.

I will take the Orange section next. I have tried several, but like Orange Nosegay best, though it is too small a truss, and too strong a grower. I have a promising kind to try this year, called Grace Holmes, which seems dwarf and free-blooming, and I hope to be able to report favourably of it another year.

The Rose section comes next, with Rose Rendaller, Rose Perfection, Blue Bell, Ne Plus Ultra, &c.

Of these, Rose Rendaller has hitherto proved far the best; it is rather upright in its habit, but if carefully pinched in before bedding-out, its trusses of bloom are so fine and of such long continuance, that I know nothing to equal it yet in this colour. Blue Bell (another misnomer), has, in my opinion, too coarse foliage, but otherwise is good. Christine Nosegay I have not sufficiently tried. Rose Perfection did not answer the expectations I had formed of it, but the colour of the flower is so good that I shall give a further trial this year. Ne Plus Ultra is also promising, but I had not enough of it to bed it last year.

Although I have now tried several salmon-coloured varieties, I have never yet found one which altogether satisfied me; and the same may be said of what the Royal Horticultural Society's report calls ocellate Zonals, of the type of Madame Werle, Françoise Desbois, &c. The only one of this section which may prove good is Gloire de Corbenay; but I have hitherto found none that would stand both sun and rain.

Madame Vaucher is still as good as any of the white sorts, but we are very much in want of a better, and a good white-edged variegated kind supplies the want in a great measure.

To sum up, then, I think the best bedders we have at present are—Waltham Seedling, Le Grand, Eclat, Cybister, Multiflorum, Violet Hill, Grand Duke, Dr. Hogg, Indian Yellow, Rose Rendaller, Robert K. Bowley, Masterpiece, and Godfrey. The last three I have not yet tried except in pots, but am very confident of their succeeding.—C. P. PEACH.

### THE FIG AND ITS CULTURE.—No. 5.

**SOILS.**—Somewhat in relation to this, we have one very noteworthy fact, which has repeatedly been observed—namely, that the Fig has been found to succeed best in districts bordering on the sea, whether the plants have been grown in houses or in the open air. All along the southern coast of England the Fig succeeds most admirably; this may be partly owing to the genial, humid atmosphere on the sea coast, or a little, perhaps, to the sea air, as in the north of Scotland the Fig also succeeds near the sea, whilst in inland districts farther south it is much more difficult to cultivate. The same fact has been noted of the Fig in France and other countries, with but few exceptions. What, then, it is worthy to inquire, are the natural conditions of these districts which seem so favourable for the growth of the Fig? A moderate yet warm temperature, a humid atmosphere, sea air, and a calcareous soil. In almost every instance where the Fig has been found to succeed well the soil is chiefly calcareous and shallow, resting very frequently on the chalk, or on any gravelly subsoil. These, then, are the conditions which we must provide and secure to command success. If a calcareous soil cannot be had naturally, the soil must be made to assume the same conditions by mixing it with chalk, lime-rubbish, and materials of that kind, the chalky particles acting not merely as simple earthy ingredients, but tending to give it greater porosity. To two-thirds of ordinary yellow loam, add one-third of chalk, with some burnt ashes. Trees in pots, which are more confined in their energies, require a soil somewhat richer; for them, therefore, add a good portion of rotten manure.

**PREPARATION OF THE BORDER, &c.**—Trees planted out, especially those in the open border, should have the space allotted to their roots, as well as the quantity of soil, very limited in extent, so as to check their natural tendency to exuberant growth, and a production of gross and unfruitful shoots. The soil should therefore be excavated to the depth of about 2½ feet, and then from 9 to 12 inches filled up with brick rubble for drainage; over this put a layer of chalk of about 3 inches, and fill up with the remainder with the soil recommended. The border for trees on trellises or against walls need not be made more than from 4 to 6 feet in width, unless it is intended for the trees to attain a very large size. The roots should be prevented from extending further by a solid brick wall in front. For bush, standard, or ordinary-sized trees planted out, a square yard of soil about 15 or 18 inches deep will be quite ample for a good-sized plant.

**ROOT-PRUNING.**—Another mode of repressing the excessive vigour of the Fig and inducing fruitfulness, is root-pruning. This is rendered necessary at times, and is beneficial also when, if the soil happens to be rich, and the roots have liberty, the trees are growing too luxuriantly. The plants may be taken up out of the soil, the roots shortened or cut quite closely back, and then replanted in the same soil. This should be done as soon after the fall of the leaf as possible, as if delayed until late in spring it is apt to endanger the first crop of fruit. With small bush trees, &c., planted out, it is recommendable to subject them to this treatment regularly every season. Some may require much pruning, others very little. The condition of all, however, is thus seen and known, and the cultivator is enabled to treat them accordingly. With large trees which are in a fruitful state, this root-pruning is not necessary; but with unfruitful rampant-growing trees of whatever age or size, it is, perhaps, the most efficacious mode of bringing them into a fruiting condition. It is wonderful how much it improves them, causing the production of short, stubby, fruitful wood. It is a practice, therefore, to be highly recommended.

**POTTING.**—The young plants or cuttings (as explained at page 107) are first potted-off into 3-inch pots, the soil then used being rather light, after which, when the roots have pretty well reached the sides of the pot, they should be potted into what are called 48's, or pots 5 inches in diameter, the soil used being that recommended for the tree's general culture. The pots should have a liberal supply of drainage; pieces of broken pots are the best, and they should always be clean and pure, not dirty, as frequently is the case, and in poorly-sized pieces. A little extra attention to these comparatively small matters will tend to greater success in the pot cultivation of all sorts of plants.

By the end of the first season the plants will have become tolerably well established in the above-sized pots. Some may have required a third potting. If it is intended to secure large plants speedily, they may be shifted into larger pots as soon as it is found that the roots have freely penetrated through the soil, otherwise it will not be required. Fruit being the object, a little cramming at the roots is most conducive to that end, excess of pot room tending more to the production of wood. As soon after the fall of the leaf as possible, the plants should have all the loose soil shaken from the roots, the roots slightly shortened, and should be shifted into pots just a size larger; then during the succeeding summer if the plants seem to require it, they may receive another shift. After the fall of the leaf the same practice in shaking out the soil, trimming the roots, and re-potting, has to be again performed, and so on year after year, or at least until the plants occupy as large a pot as it is intended they should.

Fig trees will produce fruit in very small pots, and they are then much more interesting and more easily managed than when in large ones. We should endeavour, therefore, to retain them as long as possible in the smallest pots we can. Many of the plants may not every season require a larger shift; these should therefore simply be turned out, the ball of roots and soil reduced, and be re-potted in the same-sized pot. I do not recommend the use of large-sized pots for any fruit tree, as they are not only very unmanageable, but they take up much space, are unsightly, and not in any way advantageous. For Figs, the largest size I would recommend is the 14-inch—that is, 14 inches in diameter. The most desirable size, however, is the 12-inch. I have found almost as much fruit can be grown in pots of that size as in larger pots, and they are much more convenient. Plants in the largest-sized pots may, if in good condition, instead of being re-potted, have the surface soil picked off as far down as possible—half-way down the pot—with

a great portion of the roots as well, and the space filled up with fresh soil. Every second or third year, however, they should be turned out of the pots completely, the ball and roots reduced two-thirds, and again repotted. In this way the same plants will for many years produce fruit in abundance in the same-sized pot without increasing much in size.—A. E. C.

#### MESEMBRYANTHEMUMS FOR BEDDING-OUT.

ALTHOUGH for many years I have devoted much attention and time to the embellishment of my flower garden, and some seasons almost exhausted my exchequer through expending large sums in procuring all the novelties among the Zonal and other varieties of Pelargoniums which have been so strenuously recommended, yet it never occurred to me, although acquainted with the family of *Meisembryanthemums*, to use a selection of the most free-flowering and showy species, such as those of which I send you the names.

I saw these bedded-out in the flower-garden part of a small nursery ground, of which I do not now recollect the name, but adjoining the station of the London, Chatham, and Dover Railway at Penze; and excellent was the effect in the way of a gandy display, although at the advanced end of the season—namely, the first week in November, and at a time when all my Zonals, &c., were destroyed.

These *Meisembryanthemums* were certainly most tastefully arranged, producing an effect such as I am confident no other family of plants could furnish at so late a season, nor, indeed, during the most favourable part of the summer. The species were as follows, all planted in long rows in a bed:—*Curviflorum*, pure white; *coccineum majus*, spectabile, conspicuum, formosum, inculaenda, diversifolium, glaucum, glomeratum, aureum majus, a splendid large golden flower, and *bispidum*, and there were many others equally abundant and perpetual in their habit of flowering with those I have enumerated.—R. CLARKE, *Chislehurst*.

#### ORCHARD HOUSES.

I HAVE been much interested in reading the late discussion about orchard houses and their tenants, and venture to add a few plain facts in favour of such structures, as, taking them in all points, they are, when built with the means of applying heat, most useful houses. I think, however, that as a rule, the trees should be planted out; of course, in those places where labour is abundant and watering no object the pot-system has the advantage of perfect control of the roots; but, generally speaking, gardeners in spring have as much as they can possibly do, and the having a large orchard house to attend to, with the trees in pots, is a large addition to their labour, and once neglect them and a season is lost.

I speak feelingly, having a vivid remembrance of a large orchard house in Staffordshire, a beautiful building, but the trees all in pots, and the watering twice a-day was something tremendous, and the amount of fruit not at all in proportion to the amount of labour. My house here is quite small, a span-roof 25 feet square, with about three dozen trees in it, all planted out, and at present it is quite a picture. The trees—Peaches, Nectarines, and a few Apricots—are all in the most robust health and literally covered with fruit; in addition to this, having seven Vines on the roof, I shall have a good quantity of really first-rate Grapes. Peaches last year measured 10½ and some 10½ inches round, and Nectarines 8½ inches to 9½ inches, and the trees carried a full crop, thanks to having means to heat the house during the cold sunless weather we had last spring. In fact, nine seasons out of ten an orchard house is almost a certain success if unheated, and with the means of heating a gardener is decidedly not clever if he ever fails, let the weather be what it may, accidents of course excepted.

With the trees planted out, there is no more attention requisite in watering than in a vinery. I give my house liquid manure pretty freely, and look upon the syringe as the most efficient aid in maintaining perfect health and cleanliness.

One remark of "T. F." is certainly original. He says, "Let us down with such torture and cruelty, and study the nature and habits of the plants we try to cultivate," &c., and yet his trees are enjoying a good wall and wire trellis—rather queer things to be found in nature! Standards and bushes are far more natural, and decidedly more profitable. If "T. F." resides in this locality I shall be glad to show him my house, and have no doubt he would be converted and

become an ardent believer in orchard houses. At all events, he ought to try them with the trees planted out ere he makes use of such sweeping accusations against orchard houses.—J. H. DAVIS, *Haslewood, Upper Norwood*.

#### SOIL FOR STRAWBERRIES.

THE soil on which I have found Strawberries succeed best and produce the best crops is a substantial black loam; in such, if prepared in the usual way, and a fair portion of manure added, they will produce good crops for four years. Here, last year, we gathered from part of the varieties cultivated berries 4 ozs. in weight, and the crop was abundant. The plants were constantly attended to with water from the time that the fruit had set until it was becoming ripe. We never cut off the leaves in autumn, but remove all the summer's growths from the sides of the rows, and then hoe and rake the space between.

A year ago I planted a new quarter, and the plants are now in splendid condition; I also had a crop of magnificent Onions between the rows of Strawberries, for the soil is well adapted for both Strawberries and Onions.

I can readily understand the cause of failure where people have to cultivate a light poor soil, for, with the best of skill on the part of the gardener, Strawberries can never produce well. They should be removed every three years, and when preparing the ground it should have a large allowance of manure from the cowhouse. In planting, the plants should be made very secure in the ground, all runners should be cut off, and if the weather be dry supply water constantly as above stated.—JAMES REID.

#### TREES AND SHRUBS VERSUS HARES AND RABBITS.

WHERE hares and rabbits are numerous and can gain access to pleasure grounds and plantations, the patience of the planter is tried to the utmost. He plants trees and shrubs suitable to the soil, situation, and the object in view, takes care that the ground is properly prepared, that the planting is performed at a favourable time, and pictures to himself the yearly progress; but whether the object be shelter or ornamental effect, his anticipations are cut short by these four-footed invaders. That hares and rabbits are fond of some things and dislike others, is only what may be expected; but that they bark trees and cut off the tops of the young and tender shoots from no liking that they have for them for food, is like saying that rabbits make burrows to play in, and not for shelter and safety. Every thing and every creature are for a purpose, and work, insignificantly though it may be, in some way for the good of man. I may be asked, What good are rabbits and hares? With regard to rabbits I have no answer to give, except that they are good for food. In some uncultivable parts of our island they may be kept with profit. There are thousands of acres not yielding anything, that might be made profitable; for on our highest hills, and where Brake, Heath, and Gorse, the rock and crag are, there the rabbit would multiply, and would tend to diminish the price of beef and mutton. To defend the keeping of rabbits in highly cultivated districts I know is absurd. The sportsman cares little or nothing for them, and most landowners are as anxious as the tenants to have them destroyed; but not, as some would like, by anybody, for they well know that under pretext of killing rabbits the gun is levelled at, and the snare, net, and trap set for nobler game.

Rabbits are far more destructive than hares to trees by peeling off the bark, and are far more difficult to scare or keep from what they take a liking to. Hares not only do not commit so much damage as rabbits, but are also more shy; but though they do not attack the bark to such an extent as rabbits, they are very destructive to it, as well as to the tops of young trees, and the young shoots of shrubs.

Where hares and rabbits are numerous it is not a question of what is most suitable for planting, but what will stand a fair chance of escaping their attacks. There are trees and shrubs which they are very fond of and in ordinary winters eat to the quick, some which they do not attack except in very severe winters, and others which they do not touch under any circumstances. Much valuable information has already been given on the subject in the pages of this Journal, but I think it worthy of greater attention than it has hitherto received, and I shall be glad of the experience of others. It cannot be ex-

pected but that the evidence or facts must vary considerably, for hares and rabbits may be partial in one spot to something which they may not attack in another from their finding preferable food; therefore, I think it desirable that each correspondent in giving his experience should state—1st, What trees and shrubs are most liable to their attacks; 2nd, Those they do not interfere with, except in very severe winters; 3rd, Those not interfered with in any way.

Before entering further into the subject, I should like to make a few remarks on the size of the trees, which has a great effect, for it is when these are young and tender that they suffer. Take, for instance, a Spruce 18 inches high or less; every growing point is out off, whilst one 2 feet high or more may escape, as the main stem of the Spruce is seldom interfered with; and the like remarks apply to the Scotch Fir. Not so, however, with the Larch; hares cut off the tops they can reach, and rabbits bark the stems, if the tops are out of reach; both will bark Lime trees of considerable size. Deciduous trees, when planted, are generally so tall that their tops are beyond the reach of rabbits and hares, but many evergreens or nurplings are planted when so small that rabbits can attack the leaders. These matters require consideration, for it may be laid down as a rule that the older trees and shrubs are, the less liable they will be to suffer, for when the bark becomes scaly, rabbits and hares do not care for peeling it off. What they want are the young bark and the tender shoots.—G. ARNEY.

(To be continued.)

### CHARCOAL REFUSE.

MOST charcoal dealers dispose of the small refuse charcoal at a rather cheap rate, but not so cheaply as most people can make it for themselves. The mere dust is best used for seed-covering and in propagating. When used to lighten or keep the soil open out of doors, in a bed of Cucumbers, or for pot plants for the window or the greenhouse, the mere dust should be excluded, and only the little bits of charcoal used, say from the size of a pea to that of a bean or a walnut. Years ago I used charred wood rather largely, but different reasons operated for a time to keep me short of it, and I know with no beneficial result. I will therefore return to the old custom as much as I can.

It is easy to burn a heap of twigs and rubbish to ashes, but these ashes for general purposes will not be so useful as if they had been nicely charred. In back volumes the whole process and principles of charring have been referred to; and as respects large pieces of wood, or even strong faggot wood, I could not improve on the mode recommended; but though, when charring large wood I was perfectly satisfied, I was not equally satisfied with charring twigs and small wood—that which is most readily obtained for general garden purposes. I used to make rather large heaps, cover them carefully, and take other precautions, but the result too often was that I had more ashes and less charred wood than I expected.

If I have led many of your readers into a mistake in this direction, the only apology I can make is frankly to state that at the time I knew no better way. Now, unless I wish to pass the fire through a lot of bad weeds, or a lot of clay and effete soil, so as to make it almost as valuable for mixing with heavy soil as a dressing of lime and sand, for all small wood, prunings, clearings, &c.—say from the size of a wheat straw up to that of the little finger or thumb—which I wish to char, I have given up all idea of large heaps, covering them, watching them, &c. When I now want from a bushel to several barrowloads of small well-charred wood for potting and general purposes, I have it, if I can obtain the material, in the course of an hour or two. The plan is best carried out when the wood or twigs are sorted a little as respects size. It is as well when wood from the thickness of a straw to that of the little finger goes together, and when that from the thickness of the little finger to the size of the thumb also goes together. Now, to obtain as much charred material as possible in little time these precautions are necessary:—The heap should not be large—say from one to five or six barrowloads, then a little dry straw should be placed in the middle to light it, and before the fire is applied a layer of damp litter, dung, tree leaves, or vegetable refuse ought to be thrown over it when the fire has taken hold. According to the size of the wood, from mere twigs up to common faggot stuff, from half an hour to an hour and more will be sufficient to char the wood through, and yet little will be burned to ashes. When a little is drawn out and found to be charred, water is thrown over the heap, covering and all.

When the steam has passed off the covering is laid aside, and more water given to prevent further burning. For particular purposes, when it becomes cool, the charcoal is sifted so as to separate the larger pieces from the mere dust. By catching it at once, I have several times from a heap of very small wood had scarcely a peck of black ash or dust, to three or four barrowloads of good, useful, charred stuff.

If at any time, owing to a want of poorer stuff, I could command from one to a dozen common-sized faggots, where the wood would range from a quarter of an inch to 1½ inch in diameter, I should never be long without useful charred material, if I had a little damp litter, long grass, or weeds to cover it with. Such clean charred stuff is one of the best moderators and regulators of soil, rendering a person nearly independent of many of the materials, such as heath soil, which in some places it is almost impossible to obtain.

After trying many plans I have found no mode so successful for turning out such a quantity of charcoal and with so little trouble as the above. I recommend it, therefore, to the consideration of your readers, and I shall be greatly obliged if any correspondent will point out a better and more economical mode of obtaining a greater quantity of charcoal more easily from small wood, prunings, faggots, &c.

I certainly would prefer prunings of hardwood to those of softwooded trees, or of the Pine and resinous trees; or rather I would have greatly preferred them in times gone by. I believe that the action of the fire exercises an ameliorating influence. I have used the charred twigs of Larch and various Pinuses, the Scotch Fir among them, for some rather tender plants, and the roots seemed to luxuriate among them. This season I charred a lot of Laurel prunings, after most of the leaves had dropped, but whether the hydrocyanic acid was decomposed or not, I never saw healthier roots of Scarlet Pælagoniums than where a lot of such charred refuse was used to lighten and regulate the soil. In such a matter, however, I should be very glad to find my own experience confirmed, or the contrary experience stated. At present I am inclined to believe, and make known my belief for the benefit of others, that charred material from any wood is better than none. If we are to be shut out from road drift and road sides, and may as well think of pulling a star from the sky as being allowed to revel in the top spit of a park or pasture land, we shall be forced every day to make the very most of what we can get, or manufacture at home.—R. F.

### COTTAGERS' HORTICULTURAL SHOWS.

(Concluded from page 293.)

In general it will be found that cottagers are by no means unwilling to exhibit when encouraged to do so. In a small parish, where I had the pleasing duty of acting for some years as secretary to a show, supported by the principal landowner of the place, we had usually between three hundred and four hundred entries from fifty or sixty exhibitors, being, with very few exceptions, something from every one eligible. The prizes announced in the schedule were supplemented by a liberal number of extra prizes at the discretion of the judges, so that comparatively few retired from the show without a prize of some kind, and many with a great number. The garden and premises generally of every exhibitor, and of some who were not exhibitors, were also looked over, and prizes given to the meritorious in the form described in the following schedule, copies of which were distributed beforehand in the neighbourhood.

#### COTTAGERS' HORTICULTURAL SOCIETY AND SHOW.

FOR THE COTTAGERS AND ALLIOTMENT TENANTRY OF ——— PARISH TO BE HELD ———, 1870, WHEN PRIZES WILL BE GIVEN AS UNDER—VIZ.,

	s.	d.	s.	d.	s.	d.
For the best-managed garden of large size . .	10	0	7	6	5	0
For the best-managed garden of smaller size . .	7	6	5	0	3	6
For the best-managed allotment garden . . .	7	6	5	0	3	6

In awarding the above, attention will be paid to the quantity and variety of useful produce in proportion to the size of the garden, the preparation for the ensuing year, the state of the fences and piggeries, and the cleanliness and neatness of the cottages and premises generally, as well as the cultivation of fruits, flowers, creepers, and window plants.

#### RULES OF THE ——— HORTICULTURAL SHOW.

1. All exhibitors must reside in ——— parish, or have been at least one year employed by a resident in this Society.
2. No person to exhibit any production which is not the growth of



lengthen this report by inserting a long list of botanical names, but the Council feel proud at being able to instance the famous Sonrya (the Tulip Tree of India), of which a considerable number are growing at the park, and the glorious *Poinciana regia*, also being raised in hundreds. This is the more gratifying at a time when the question (and want) of shade trees is again being discussed. Among other new plants introduced, the value of which to the colony has yet to be ascertained, is the plant from which the pith hats, well known here and in other tropical countries, are made. For this importation the Society is indebted to Dr. P. Von Mueller, who, after years of endeavours, succeeded in procuring the seed, and in the true spirit of science lost no time in placing some at the disposal of this Society, that the plant might be permanently secured to Australia, in case the climate of Queensland should be better adapted to it than that of Victoria."

## ROYAL BOTANIC SOCIETY'S SECOND SPRING SHOW.

This was opened yesterday, and will be continued to-day. It is altogether an excellent display for the period of the year, but the pot Roses constitute its greatest charm. These are not only numerous, but in beautiful bloom, and we expect nothing less from such exhibitors as Messrs. Paul & Son and Messrs. Lane.

Collections of twelve greenhouse plants in flower came from Mr. Wright, gardener to C. H. Compton Roberts, Esq., Avenue Road, Regent's Park; and Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park. Mr. Wright had two fine pyramidal *Azaleas*, viz., *Coronata* and *Alba*; a large plant, in excellent bloom, of *Genetia fasciculata*, *Aleandra fragrans*, *Erica elegans*, and a good specimen of *Erica Hartwellii superba*. Mr. Wheeler had very good specimens of *Azalea Stella*, *Tetrathoe ericifolia*, *Aphelexis*, *Erica Spenceri*, and a well-flowered *Drosera* plant.

Collections of twelve forced hardy herbaceous plants came next. Of these Mr. Ware, of Tottenham, furnished examples of *Primula cortusoides amana*, looking beautifully fresh and bright, the white-flowered and a small pink-flowered variety of the same; *Trillium grandiflorum*, *Dielytra spectabilis*, *Dicentra Farnesii alba*, a double yellow Wallflower, *Samolus hibernicus*, and others. Mr. Wheeler sent two nice pots of *Androsace purpurea*, *Dielytra*, *Hoteia japonica*, *Arabis alba*, &c.

Collections of twelve *Rhododendrons* came from Messrs. Lane and Son, Mr. Wheeler, and Mr. Wright. In that from Messrs. Lane, Mrs. John Waterer, Sir Isaac Newton, *Ne plus Ultra*, *Imperatrice*, *Fastuosum flore-pleno*, and Lord John Russell, formed splendid masses of bloom, while *Minnie*, as a light kind, maintained its character as one of the best.

Of Roses in pots, Messrs. Paul & Son, of Chesham, had a splendid nine, every one of which was good, but Victor Verdier, Princess Mary of Cambridge, Charles Lawson, and Senator Vaise were magnificent; while *Souvenir d'un Ami* and *Beauty of Waltham* were very fine, but the first three were the stars. In the amateurs' class for Roses Mr. Wright and Mr. Wheeler were the only exhibitors. The former also sent six *Azaleas*, four of which were very well bloomed; and Messrs. Lane and Mr. Wheeler exhibited a like number.

The best six *Dielytras* came from Messrs. Reeves Brothers, Notting Hill; and the only exhibitor of *Amaryllis* was Mr. Baxter, gardener to C. Kieser, Esq., Froxtonnere, who, in addition to sending six for competition, sent a collection of twenty-one seedlings in the miscellaneous class. Duke of Edinburgh and Kieser were two rich blood red varieties; and Albertine, Olga, and Mille, Tietjens the finest of the light-striped kinds.

*Dentzas* in good bloom came from Messrs. Lane, Reeves Brothers, and Mr. Wheeler; also from Mr. Wilkie, Oak Lodge, Kensington.

Among miscellaneous subjects were several excellent exhibitions, Mr. Wheeler sending a remarkably good collection of fine-foliated and flowering plants, including a fine pot of *Panicum variegatum*. Messrs. Paul & Son had a large collection of beautiful pot Roses, also a box of cut blooms of *Marshall Niel*; Mr. Wright a collection in which were magnificent specimens of *Phenophorum sebellarium* and *Genetia thymifera*, *Orchids*, and *Ferns*; and Messrs. Rollison, *Dendrolium densiflorum*, *Vandas*, and other *Orchids*, *Dichorizantras*, *Heaths*, *Azaleas*, and *Ferns*. Mr. Osman had cut blooms of *Roses*; Mr. Bragg, *Pansies*; Messrs. A. Henderson & Co. and Messrs. Ludden Brothers, *houquets*; Messrs. Carter & Co., *Tricolor* and *Golden-leaved Pelargoniums*, and *Eschveria metallica glauca*; and Mr. W. Paul, Princess Christian Rose, *Tricolor Pelargoniums*, and *Primroses*—several, as *Waltham Magneta*, *Waltham White*, and *Waltham Yellow*, very showy; and Mr. Stevens, *Ealing*, had a first-class certificate for his *Ealing Rival Tricolor Pelargonium*. From Mr. Chambers, gardener to J. Lawrence, Esq., Beedington, came an object of special attraction in a number of the magnificent white flowers of *Beaumontia grandiflora*, which are delightfully scented. For these a special prize was awarded.

Messrs. Lane & Son contrived a most beautiful and varied collection of *Roses* in 6 and 10-inch pots, together with *Rhododendrons* and

*Azaleas*. Mr. Wilkie, Oak Lodge, Kensington, Mr. Wheeler, and Mr. Wright also sent miscellaneous collections, while among nurserymen Mr. Williams, of Holloway, had numerous fine specimens of *Azaleas*, *Ferns*, *Heaths*, a remarkably fine plant of *Tetrathoe ericifolia hirsuta*, besides other plants. Messrs. A. Henderson & Co. of the Pine Apple Place Nursery, sent a collection of *Azaleas* in excellent bloom; Mr. Ware, of Tottenham, a numerous collection of hardy spring-flowering plants; and Messrs. Reeves excellent pots of *Mignonette*.

First-class certificates were given for the following:—To Mr. Williams for *Agave Verschaffeltii* and *A. Verschaffeltii glauca*, two fine dwarf *American Aloes*; to Mr. Kennedy, Covent Garden, for *Macrozamia magica*, a North Australian plant, of which the roots are used by the natives as food; to Messrs. Rollison for *Eschveria agardii*, *Erica tuberosa*, *Rhododendron frutescens*, and *Pteris straminea attenuata*; to Mr. James, Highbury, for *Silver Tricolor Pelargonium* Mrs. Colonel Wilkeson; to Mr. Hooper, of Wimbledon Hill, Bath, for *Pansies* Mrs. Shirley Hibberd, Mrs. Felton, and Sunshine; to Messrs. Paul & Son, of Chesham, for *Ten Rose Celine Noire*; and to Mr. William Paul, of Waltham Cross, for *Pelargonium Waltham Bride* and *Waltham Yellow Wallflower*, a new dwarf, richly-coloured kind.

It may be interesting to add that a plant of *Fourcroya longeva* is now flowering in the conservatory, where one of the same species flowered for the first time in Europe in 1865, and was figured in the "Botanical Magazine" of that year.

## FLORISTS' FLOWERS

AT THE ROYAL HORTICULTURAL SOCIETY'S SHOW.

APRIL 26TH.

**ARICULAS.**—As I anticipated, the great backwardness of the season made the display of these of a very limited character, there being only two exhibitors—Mr. Charles Turner, of Slough, and Mr. James, gardener to Mr. Watson, of Isleworth. Mr. Turner's *Aricleas* were good; but as an old grower, full, of course, of all sorts of narrow-minded prejudices, I must protest against what seems to be the modern notion of showing *Aricleas*, and one which judges seem to favour—viz., that the larger the truss the better the flower. Now, the especial beauty of the *Ariclea* is the refinement of its bloom, and very rarely can these large trusses be obtained without the sacrifice of this quality. I do not agree with the northern growers, who consider that three pipes constitute a truss; but I do agree with those old-fashioned growers who in former days made the *Ariclea* their special hobby, and who maintained that seven pipes were a sufficient number. I have taken the trouble to carefully examine many of these large-trussed flowers, and I can see that this style of growth deteriorates the ground colour and makes it run into the edge. This would not have been tolerated in former days. I had hoped that the National *Ariclea* Show would have somewhat altered the taste, but I see no signs of it; and so I suppose, as we must have everything "big" now-a-days; we must put up with "big" trusses of *Aricleas*.

Mr. Turner's plants were very fine, and comprised some seedlings of his own as well as some old varieties. They were—*Sims's Rhiza*; Turner's Exhibitor; Turner's Colonel Chumpeys, a large-eyed flower, apparently a seedling from *Sophia*, brilliant ground colour, but with too light-coloured paste; Turner's Galatea; Turner's Bishop of Lichfield, very dark; Turner's Buckstone, style of Stretch's Alexander, and, like it, inclined to be fey in colour; Turner's Master Hole, very dark self; Lightbloss's Admiral Napier, a small plant, but the flower with a beautiful green edge; Headley's Simpleford Hero (not Turner's as labelled), very like Waterhouse's Conqueror of Europe; Turner's Earl of Shaftesbury, good, grey edge; Turner's Crown Prince, purple self. Mr. James took the second prize, and also the first in the class for amateurs, but his flowers had a good deal of roughness about them, and there was a deficiency of green-edged flowers.

Of Alpine *Aricleas* Mr. Turner had an excellent lot; and although in the eyes of old florists they can bear no sort of comparison with the show varieties, yet they are very striking and pretty. There were not, however, in the class any flowers that seemed in advance of those before exhibited by Mr. Turner.

**PANSIES IN POTS.**—It is impossible to praise too highly the admirable collection of these exhibited by Mr. James. Some of them were the perfection of growth, and I am sure would confer a favour on the lovers of this pretty flower if he would give to the world an account of his method of growing them. *Sunset*, yellow; *Novogrod* (misspelt on label), Rev. H. Dombain, Jas Craig, and Princess Helena were especially good. The collection of bedding *Pansies* was very poor, and, indeed, some had no right to the name. A bedding *Pansy* ought to be one-coloured, and of a good sturdy habit. Some of them did not fulfil these conditions.—D., Dec.

**FLOWERS IN PARIS.**—The first *Lilacs* of the season have just made their appearance in the Paris flower markets, mostly brought from the neighbouring districts of Pantin, Montfermeil, and Romainville. The expenditure in Paris for flowers is cal-

culated to be 20,000,000. annually, and Lilacs account for about 300,000. of that sum.—(*Times*, April 16th.)

### PUZZLING THE CATS.

PERHAPS you will allow me to reply to the article in your last with the above heading, but as I am only a cat I must ask you to excuse my spelling. Sir, I can truly say that "Pestumina's" letter was by far the most puzzling I ever read, and I can hardly tabulate the sensations that crept over me as I perused it; in fact, I was obliged to pass several times for fear of cataplexy, and once I almost lost my scutes. If those were nettles are ever used in the gardens of north London, where I have had my run for so many cars, why, there is an end to my felicity, and I may as well go at once to my catacomb. Surely your contributors can use their talents to better purpose than designing cataplexies for members of my inoffensive race. Where are the writer's felices? For my part I disfigure the whole lot, for I could fly the fence like a shot from a catapult, so you may put it in a class to that effect, if you think well.

Gardeners are to some extent inhibited to us, for we can strike, force, or pot a choice flower, and understand clearing a bed and cutting as well as anyone—in fact, we are always up to the scratch in a garden. This is the reason, I suppose, why so many plants are named in our honour: for instance, the *Cats-chub*, the *Cats-cheved*, *Catmint*, the *Catstail* and *Catsfoot* Grass, the *Catscar*, &c., to say nothing of the illustrious *Cat-kia* family, to which I belong.

Sir, in future do not allow your contributors to throw a stigma on the cats for however amusing it may be to them, it is very ungrateful to me—W. G. S., HIS CAT.

[We think the writer of this should be made acquainted with the cat-e-nine-tails.—Eds.]

### NEW BOOK.

*Trees and Shrubs for English Plantations.* By AUGUSTUS MONGERDIEN. With Illustrations. London: John Murray.

We wish that the contents of this book had fully equalled in merit the excellence of the printing and paper which place it before the public, for then it would have been very superior. We do not say that the work has no merit, but it might have been far more useful than it will be unless additions be made. It is said to have "illustrations," but an illustration to be worthy of the name should promote the objects, or help to enforce the details, of a work. Now, there is scarcely one of either the engravings or woodcuts in this book that does so promote or help—there never was, for instance, such an *Araucaria imbricata* as the *Conifer* represented on the frontispiece; and the stump supposed to be the wreck of *Herne's Oak* can in no way enable, to use the words of the preface, amateurs "to avail themselves of all the resources at their command." Now, among those resources (although the author speaks with reservation), the *Papaw* should not have been included. With this, and one or two less exceptional instances, the descriptive list of 621 species may be accepted.

Chapters then follow, all very useful, classifying the 621 species according to their heights, leaves—evergreen, variegated, coloured, and fragrant—flowering and times of flowering, colour of flowers, fruit-bearing, useful produce, form, use for coverts, and a list of fine collections.

Now, we suggest that in a future edition the chapter on "Form" should be made much more useful. The divisions of trees into horizontal, fastigate, and pendulous are proper, but very meagre, and would have been very much more useful if accompanied by illustrations and by examples of good taste in grouping them together. We need only refer to Gilpin's "Forest Scenery," and many other more modern works, for examples of what would be most useful, because guiding, to the amateur. In the chapter on foliage, too, we think that most useful suggestions might be given as to those which contrast and those which harmonise pleasingly owing to their differences of colour and form.

The book is useful as it is, but with the additions we have suggested it would be much more useful. We quote two lists as examples of the contents:—

"SPECIES THRIVING IN THE SHORE OF CITIES.—Of course, the expression 'thriving' is to be understood as merely comparative. No plant can either grow or flower so well in the impure atmosphere of large towns as in the open country. But whereas most trees and shrubs dwindle away and die under the mephitic influence of air surcharged with carbon, &c., there are a few that will withstand it tolerably well. The list is not a long one, but it may be hoped that further experiments will be made with a view to extend it.—*Essalia Hippocastanum*; *Ailantus glandulosa* (a large tree with beautiful leaves, much used for shade in continental towns, and amongst other places

on the Boulevards in Paris); *Ampelopsis hederaea* (the Virginia Creeper); *Amysgdalus communis*; *Artemisia Abrotanum*; *Azuba japonica*; *Catalpa syriacifolia*; *Cydonia japonica*; *Cytisus Laburnum*; *Ficus Carica* (the Fig Tree, occasionally found in odd out-of-the-way nooks, courtyards, and close areas, not fruiting, but freely producing its beautiful large leaves); *Hedera Helix*; *Jasminum officinale* (the Cape Jasmine, whose introduction dates earlier than our earliest gardening records); *Ligustrum vulgare* (and probably the *Indicum*); *Paulownia imperialis*; *Phillyrea media*; *Platanus occidentalis* (the Plane, which of all large trees is probably the one which answers best for city cultivation, owing to its smooth leaves and ever-peeling bark); *Quercus Ilex*; *Rhamnus Alaternus*; *Rhus typhina*; *Ribes sanguineum*; *Robinia Pseud-Acacia*; *Sorbera japonica*; *Viburnum Opulus*.

"SPECIES THRIVING ON THE SEACOAST.—The powerful sea breezes, and the salt spray which they convey to some distance inland, are both highly detrimental to most plants, and hence it is only in sheltered valleys abutting on snug bays that general plantations can be made to thrive near the sea. The following species, however, are found to flourish better than others under exposure to the sea breezes:—*Acer crispum*, *monspeliacum*, *platanoides*; *Arbutus Uuedo* (and probably other species); *Colutea arborescens*; *Elaeagnus hortensis*, *argentea*; *Fagus sylvatica*; *Ficus Carica*; *Hippocastanum*; *Hydrangea hortensis*; *Ilex Aquifolium*; *Laurus nobilis*; *Lycium europaeum*; *Myrica germanica*; *Myrtus communis*; *Picus Pinaster*; *Quercus Ilex*, *Suber*; *Rhamnus Alaternus*; *Tamarix Gallica*; *Taxus baccata*.

"It is very desirable that a systematic course of experiments should be instituted, in order to discover other species that would stand sea-exposure. The beauty and healthiness of marine residences would be wonderfully enhanced by the adornment of trees and shrubs. The few that are now cultivated in such positions are so cut up, distorted, and stunted, that they are rather eyesores than decorations. It is not the mechanical violence of the winds alone which causes the mischief, for many trees withstand fiercer gales in their mountain abodes; it is the saline particles with which the sea breezes are impregnated which impair and finally destroy the vitality of the plants. Judging by the analogy of salt-loving plants indigenous to the steppes of Siberia, most of which are distinguished by glaucous or silvery foliage, it might not be amiss to experimentalise with species possessing the peculiarity of hoary or downy leaves."

### BOILERS AND HOLLOW BARS.

NOT long since your Journal contained engravings and accounts of two new boilers for heating by hot water, one of which was the invention of Mr. Foster, and is liable to the objection of being one of the most complicated that has yet appeared, and, therefore, it must be correspondingly expensive. The other is a simple square-shaped saddle-boiler with wings, called the pocket-boiler. This bears a very close resemblance to, and is practically identical with Ireland's terminal saddle-boiler, except in not having hollow fire-bars. It is to these hollow fire-bars, however, that I wish to draw the attention of your readers, considering them to be the most valuable invention yet introduced in regard to the circulation of hot water.

I have had some little experience of boilers, having commenced some years ago with one of Thomson's retorts. This, there can be no doubt, is a most erroneous construction, as the fire being beneath radiates its heat into the brickwork at the sides and end, causing an enormous waste of power. My boiler, which was to have warmed 1000 feet of pipe, I found would not warm sufficiently 250. I next tried a plain saddle boiler, 2 feet long by 18 inches wide, made flat on the top, so that the smoke could be turned over it before going into the flue. This did its work much better, and sufficiently warmed the same extent of pipe; but it was a long time in getting up the heat, and the manner in which the coke ran together into clinkers when the fire was strong and really effective, was quite a torment to the stoker.

I have since procured one of the terminal boilers, which, though scarcely so large, and not consuming quite so much fuel as the former, is so much more powerful that it has enabled me to extend my glass structures and to add more than 100 feet to my circulating apparatus, which is still warmed as thoroughly as any gardener could wish. This is all owing to the invaluable discovery of the hollow fire-bars. My terminal boiler, owing to these, heats the water in much less time than my old-fashioned one did, and it has completely done away with the nuisance of clinkers, the coke all burning out gently and leaving only a little ash on the grate; for the fuel on the bars being practically in contact with the water can never arrive at that intense white heat at which clinkering commences, the water taking up and passing on the heat through the house with great rapidity. So effective, indeed, is this improvement in heating, that when the surface of the fuel is almost dead, and when there would be no radiating heat worth

speaking of to warm the sides and top of the boiler, the heat communicated by the red-hot fuel on the hollow bars still keeps up a genial heat in the pipes.

Some gardeners, I believe, object to the addition of the hollow fire-bars to the saddle boiler from fear of these becoming incrustated with a coating of lime, which is apt to attach itself to them where hard well water is used; but this could never occur if they need rain water.

I do not wish to recommend one boiler more than another, insisting only on the advantage of the bars. Peculiar local circumstances compel me to use the saddle construction, because I cannot make a hole deep enough to receive an upright conical boiler. I think it very handy and convenient, and that the more simple the manner in which it is made the more satisfactory it must prove. The draught in the terminal boiler is weakened by being divided between two side flues, and with me the fuel does not burn through the night; whereas, in my old boiler where the smoke escaped at the end the fire never went out, but could be stirred-up and set going again in the morning. The person who has to attend to a boiler-fire will certainly be thankful for a quick draught, which can always be regulated by the ash-pit door and the damper in the chimney.

—A CONSTANT READER.

[We are glad you so much approve of hollow water-bars for the furnace of your saddle-back boilers. Our own experience led us to form quite a different opinion. True, clinkers were not so easily formed, but if they were when the fire was strong, they were always troublesome and dangerous to dislodge, and in a low fire when so much heat was not wanted, the hot-water pipes used as bars became so cool as greatly to retard even slow combustion. It is but right, however, that both sides of a question should be stated. The absorption of heat by bricks in a furnace is not all loss, as that heat is given out again.]

### LAWN MOWERS.

"ARCHAMBAUD," at page 277, gives an account of the new Archimedeal lawn mower, which, I think, is calculated to mislead the inexperienced about the requirements and capabilities of what should constitute a good lawn mower. I think "ARCHAMBAUD" commits a mistake in asserting that the fineness of construction of our English lawn mowers necessitates the grass being of a certain quality. Surely he does not mean that they will not cut any particular variety of grass, and as to the bents, &c., I think the American will have no advantage over the English lawn mowers.

I have no doubt the Archimedeal will cut longer grass than most other machines, but that I do not count as being of any advantage, as every gardener knows it is bad policy to let grass get long before cutting, as it injures the fineness of the sward more than anything else, neither does it save the labour that some might be led to think it did. I think the rollers of our lawn mowers are preferable to the skid or sole of the Archimedeal, because, of course, the skid must slide on the uncut grass, and being narrow must press it down more closely than the rollers that are all the width of the machine; besides, there must be less friction with the roller than the skid.

An important feature is claimed for the Archimedeal—namely, that by going over the ground two or three times a very heavy sward may inch by inch be reduced; but what about the grass collecting? "ARCHAMBAUD" says, "When it is abundant it is easy to have it swept up." It may be "easy," but, unfortunately, with most of us gardeners we should be grudge the time unnecessarily wasted in doing it, and wish the machine were a collector as well as a mowing one. In very dry scorching weather, when the grass cut would soon dry up and not be seen, then it is, I think, an advantage not to have a collecting-box on the machine, as all go much lighter and easier without one than with one.

With me the whole question is, which of the different machines cuts the grass with the least labour? I have a lively recollection of twenty years ago, when I and two others had to work one of Badding's 10-inch machines; now it would cut almost anything, but if the one steering did not mind to keep a uniform pressure on the handles, or if the two pulling gave a sudden jerk, you be to the sward—I warrant every particle of green disappeared in a moment. This was cutting with a vengeance that no machine of the present day could surpass. But what labour there was lost in the pressure of regulation, which affixing front rollers saved. The next improvement was making the machine much lighter, and another was putting

more knives or cutters in the cylinder, so as to reduce the necessity for such high speed. Budding's machines with five cutters had to revolve about thirteen times in a yard; Green's, which are what we have in use here, with nine cutters, revolve about seven times in a yard. Now, if the principle of low speed of cylinder be correct, then the Archimedeal must be wrong, as it, with only two cutters, must have to revolve at a very high speed to keep it from ribbing the grass.

I am fully aware of the importance of having proper garden assistants in the shape of the best machine and tools. Perhaps there is none which admits of more diversity of choice than the lawn mower; as it is the most costly of all our implements, it is that which we ought to be the most careful in selecting. My object in writing this is neither to praise nor depreciate any particular machine, but to caution the inexperienced from being led to purchase any novelty without its first having had a proper and fair trial, and this can only be done by comparing it with others under the same conditions at the same time. The proper authority to do so would be a body like the Royal Horticultural Society. I think it is a matter in the gardening world of sufficient importance to merit their attention.—ROBT. FEATHERSTONE, *The Gardens, St. Ann's Villa, Burley, Leeds.*

### THE GARDENER AND THE COOK.

It is the custom here to send into the kitchen every morning at ten o'clock for the garden orders, but the cook maintains that the gardener himself should go in and consult the bill of fare, which is hung up in the kitchen every morning, and so judge what vegetables are required. I should feel obliged by your telling me what is customary and proper.—A. D.

[You are so far highly favoured as to have the wants of the day settled at ten o'clock. Such a system prevents great annoyance and great loss of time in journeys between the garden and the kitchen. As to the matter in dispute between you and the cook, we say that the best plan is for every servant to attend to his own business—that it is the business of the gardener to grow the vegetables, and for the cook to select the most suitable for the various dishes. By lists of vegetables or other means the gardener should let the cook know what is to be had. To lay the obligation on the gardener to supply the right vegetables according to the bill of fare is to expect him to be quite up in some of the greatest intricacies of the culinary art, as many dishes depend very much on the accompanying vegetable for giving them an additional relish. Speaking thus on the common-sense view of the matter, let us add, however, that if an eminent cook was so obliging as to consult us on the suitable dishes of vegetables for a very varied bill of fare, we would snap at the opportunity for increasing our knowledge in this direction. How is it that the dispute has arisen? A little courtesy is often more profitable than standing on the mere right of a thing. Mind the advice of Wattie Dickson to the young gardeners he sent out by scores—"Sow thick, thin quick, and keep friends with the cook."—R. F.]

### NOTES AND GLEANINGS.

We understand that the project of establishing a SOCIETY FOR THE ENCOURAGEMENT OF FLORESTA FLOWERS has been mooted, the Society to hold its meetings at the Crystal Palace, and that its first object would be to resuscitate the autumn show held there. We may add that the authorities at the Crystal Palace are willing to help the matter forward.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

THIS is an excellent time to make a principal sowing of all the late or spring varieties of Broccoli, such as Portenheim, Sulphur, Dwarf Late White, Knight's Protecting, and Somers' Particularly Late White; the last-named, being a late Broccoli, forms a link between the late spring Broccoli and the hand-glass Cauliflowers. Sow *Cherrie*, *Chicory*, *Hampton*, and a bed of *Sweet Marjoram* on a warm slope. The last is much harder than Basil, and will do very well in this way. A few *Kidney Beans* may be put in on a warm border. Make a sowing forthwith of *Scarlet Runners*; a couple of rows about 5 feet apart, and the sticks from each row meeting overhead as an arcade, have a very good effect, and the plan, altogether, is serviceable. Runners delight in a rich soil; a couple of rows about 8 feet apart, and running north and south, afford an ex-

cellent situation between them for a raised bed of Cucumbers. Late Peas, as Knight's or British Queen, will answer as well. The sticks, however, should not exceed 6 or 7 feet high in this case, and the Runners should be kept topped constantly.

#### FRUIT GARDEN.

Commence disbudding Peaches and Nectarines in good time. If possible, do not suffer the green fly to establish itself even for a day. Thin out the suckers of the double-bearing Raspberries to about three of the strongest; these should be staked out thinly, and the soil should be well manured.

#### FLOWER GARDEN.

The long continuance of drying winds and bright sunshine will have been exceedingly trying to large-sized evergreens that have been recently transplanted, and the attention and expense in watering, &c., these will have required to carry them safely through, may probably convince many persons of the impropriety of removing large plants in winter or spring. Those who have an opportunity of judging between September and winter or spring-transplanted shrubs and trees, will agree with me that early in autumn is the best season for effecting the removal of plants of any size. Nothing but the most careful attention will save those that have been recently transplanted, and besides keeping the roots regularly moist, watering the plants overhead with the garden engine towards evening will be necessary in the case of such as may appear to be suffering from the drying weather, and every plant should be examined daily and carefully so that nothing may be allowed to suffer through neglect. Take advantage of the present favourable weather for the destruction of weeds, &c., to clean shrubbery and herbaceous borders; indeed, it will be advisable to run the Dutch hoe over these, if merely to lighten the surface. Bedding plants must not be rashly exposed for the present, as the weather we are experiencing would soon effectually dry the tissues of the plants that have been growing in a moist, rather warm atmosphere. The season, however, is far advanced, and the process of hardening should be commenced as soon as the weather will permit; but for the present shade slightly during bright sunshine, and expose freely to air such plants as are established, carefully avoiding cold drying winds. Highly-dressed lawns should be mowed at least once a week at this period, for a well-kept lawn is always a most pleasing object. Let the dressing of herbaceous or mixed beds or borders be finished without delay, and prepare estates where blanks exist, to receive Verbenas, Fuchsias, Heliotropes, Calceolarias, &c., now in the course of hardening for this purpose, and for forming masses. Self-sown annuals, the *Mimulus* family, the *Forget-me-not*, and other useful little plants, also *Pansies*, may, when we have a change in the weather, be transferred with balls to fill up blanks. See that runners of the *Nepohtan Violets* are provided for the next winter. Many excellent herbaceous plants have been lost or rejected to make way for mere novelties, but they are again coming into fashion. It sometimes happens that *Pansies* assume a straggling habit; in such cases the shoots must be pegged down to the surface of the bed in order to prevent their being broken by the wind, which is very apt to be the case. The beds ought also to be examined constantly, and every means used to entrap snails and other destructive vermin; if not attended to the chances of obtaining perfect blooms will be small indeed. As seedlings flower, remove the bad ones, and take cuttings of those which it is desirable to retain, as there is great risk in removing seedling *Heartseases* when in flower. In many parts of the country serious loss will be experienced from the injury the Tulip bulbs have sustained in consequence of the cankered state of the foliage and the very unsatisfactory season; unremitting attention must be paid to the removal of all diseased parts and thorough cleanliness of the beds. Protect as usual from frosts, and attend to the fastening of the elongating flower-stalks. Let seedling *Ranunculuses* in pans have the benefit of warm showery weather when it arrives. In the case of *Carnations* and *Pioteas* do not allow the surface soil in the pot to become hard; stir it from time to time, and finish putting in the supporting sticks without delay. *Pinks* will also require small rods, as they are now expiring fast. *Dahlias* may now be planted-out and protected, by inverted pots or other means, during the night.

#### GREENHOUSE AND CONSERVATORY.

No tribe of plants is better adapted to keep up a constant display in the conservatory than the *Azaleas*. The numerous varieties of *A. indica* are remarkable for brilliancy of colour, whilst the hardy American species delight with their agreeable fragrance. The principles followed with regard to the *Camellia*

to produce winter flowers are, in the main, applicable to the *Azalea indica*. Forcing into wood in good time in spring, a trifling amount of check to form the bud, and a partial rest for a considerable time before excitement, are the main features. The *Azalea*, however, will endure more heat than the *Camellia*, and with rather less shading. The plants intended for flowering next January and February should be forced into growth without delay. Continue to remove from among *Heaths* and New Holland plants all late-flowering subjects, or such as have already flowered, and young stock required for another season; place them in cold pits or frames, and while there encourage their growth by timely shifts; and to those that are not intended to be repotted, but are now making their growth, and have their pots pretty full of roots, apply liquid manure methodically, and with moderation. Pinch back in due time luxuriant-growing shoots to produce a regular and sturdy growth. The early-flowering plants of *Primula sinensis*, now exhausted, should be removed to a cool pit or frame, likewise early-blooming *Cinerarias* and other fading stock. It is of the utmost importance to have a pit or frame for this purpose, as it enables the cultivator to thin out the remaining stock now in rapid growth.

#### STOVE.

Syringe stove plants in general in the morning and evening. If any room can be spared in other structures, a few of the commoner or harder plants should be removed. Continue to increase the temperature gradually, more especially when it can be done, as at present, by solar heat, accompanied by a very considerable amount of atmospheric moisture. This will be best accomplished from 3 to 6 P.M., when the thermometer may sink to 65° for the night. Employ sweet and healthful soils, and perfect drainage, and frequently use weak and clear liquid manure during the growing season. Persevere in keeping down insects, which, if allowed, will now increase with great rapidity.

#### FORCING PITS AND FRAMES.

See that the growth of *Balans*, *Cockscombs*, *Globe Amaryllis*, &c., is duly encouraged, and another succession sown.—W. KEANE.

### DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

A VERY trying week, with bright sun, generally cold nights, and a dry atmosphere, which prevented vegetation making rapid progress. In the middle of the night, between Friday and Saturday, we had a shower of rain, which acted like a heavy dew, refreshing the foliage, and making mowing with the scythe in the morning a pleasure rather than a pain.

A few of our largest early *Cabbages* have bolted, and have been cut down close to the ground. The bulk, we hope, will stand well, and are turning in. Could we have given water, or even cooled the foliage a little, we do not suppose, from their appearance, that we should have had a bolted head. The propriety of keeping such plants at all, after cutting off the head when it shows a flower-stem, is rather problematical. Whether or no the plant will throw out some three or more *Cabbages* from its base greatly depends on cutting down rather low—say 2 or 3 inches from the surface, so as to leave a few broad healthy leaves. If cut higher up there will be plenty of fresh shoots formed, but almost every one will be sure to run to seed, instead of turning in and cabbaging. Even when cut down rather closely this will often happen, the plants yielding plenty of shoots, which are very nice when cut short, but fail to cabbage. We have cut down one bolted plant, and ere long we have obtained, perhaps, three nice little *Cabbages*. We have cut down two or three more, as much similar as possible, and no coaxing would make these plants yield *Cabbages* as fast as the shoots showed; and onwards, if kept to the end of the season they would yield nothing but shoots, with the flowering part at the end of them. We can assign for the difference no reason that would be at all satisfactory. It would appear that once the plant resolves to bloom, the tendency is too strong to be easily neutralised. We think that two or three per cent. of our earliest *Cabbages* have shown this tendency; in the second and third lot there seems as yet to be no disposition to do so. Until the late hot weather there was no appearance of bolting. Most likely a manure watering would have prevented it altogether, but this we could not manage, as water, until rain come, is too scarce. We did the next best thing, forked over all exposed ground between the rows, which seemed to refresh them much.

*Cauliflowers and Atmospheric Moisture.*—Several times lately

we have adverted to the fact, that in this hot weather plants would often be more benefited by wetting the foliage and stems, instead of deluging the roots and soaking the surface soil. We received some communications, stating that strong Cauliflower plants were suffering sadly, the foliage shrivelling and curling. We had not examined our most forward plants under hand-lights for several days, but on at once going to them, we found them having a similar unhealthy appearance, many of the large leaves attempting in their distress to double themselves, and taking on what gardeners call a slaty instead of a dark green appearance. On examining the soil, it was at once evident that the roots had enough of moisture, so that a heavy watering was quite unnecessary. About 4 p.m. a slight sprinkling was given over the leaves from the rose of a watering-pot, and the tops of the hand-lights put on. On giving air next morning the foliage was much improved, and on a second application the plants, as respects their fine healthy foliage, were everything that could be desired. No drooping of the roots merely would have produced this effect. We never saw or noticed a change so sudden as that effected by the surface-sprinkling; the plants have held their own the last few days, but if not we would have given plenty of air, without taking the tops of the hand-glasses quite off, and we would have laid a branch over the top or sprinkled it with water slightly whitened, to moderate the force of the sun's rays. We have not found this shading necessary. There was quite enough of moisture at the roots, but the ground being still rather cool, the roots were not able to absorb sufficiently to meet the demands of the sun and the dry air on the foliage. Enabling the leaves to absorb restored the desirable equilibrium.

We found it necessary to surface-sprinkle some fresh-planted Cauliflower, when merely watering at the roots would have been of little or no benefit. These were also assisted with a twig of Laurel stuck against each plant, which moderated the force of the sun's rays.

We draw prominent attention to this little matter, because in such cases a pint of water distributed with a fine rose or syringe over the foliage will often do more good than applying a gallon at the roots. The principle does not militate in the least against our general rule as to watering—namely, "Water so as to moisten every fibre of the plant, and then wait until your services are again required, and afterwards repeat the operation, so as to water thoroughly." In such weather, however, as we have lately had, the roots may have plenty of moisture, and yet be unable to absorb it fast enough to meet the demands made by a fierce sun causing rapid evaporation from the foliage. In such cases a sprinkling overhead, or a little shade, will be better than deluging the roots, and thus less or more cooling the soil.

We lately mentioned one variety of Cauliflower that the grass-mice had not touched during the winter and spring, but they have managed to cut over ten per cent. of those planted out. We blame the large grass mice, which are very troublesome here. In but few instances do they seem to eat the plants, they merely cut them over and leave them. In the meantime we have run a cord on far round the rows fresh made up, but that is unpleasant at this season. We fear that the pepper remedy mentioned by "T. M.," at page 291, would be of little use in this case, but we find that wood pigeons, partridges, and even pheasants, that would not touch our red-headed Peas in the ground, are nibbling away at the young shoots, and we will try it upon them, and report the result. All these little matters become of importance where the gardener feels any pride in keeping the kitchen going, and yet must not do anything to interfere with game. We have not found a single seed, coloured with red lead, meddled with, and not a bird could be injured, because not a seed was touched. We have never heard of nor seen traces of injury to birds that have nibbled the tops of our Peas more than we like, so that those who feared the birds would be poisoned by eating Marrow Peas that had been coloured before sowing, may throw all such dread to the winds. We formerly alluded to the wonderful instinct possessed by animals in this respect. In rows of leaded Peas and Beans, well covered up so as to conceal all traces of the leading, not a single seed was taken, not a single hole in search of them was made by mouse, rat, or bird; others sown without leading in the usual way were soon holed and cleared out from end to end.

Broccoli is now coming in plentifully, so that we shall soon be able to say good-bye to lots of Winter Greens; but good and fine as it is, we never think that it makes up for the want of rich, crisp, white, early Cauliflower, though both are excellent. We would have watered our Broccoli if we could in this hot

weather. The late kinds of Broccoli we find as useful as the early ones. A little forking of the ground is one of the best substitutes for watering. It lets the air in a little and keeps the moisture about the roots.

*Sea-kale*.—For rather more than a week we have had this very fine out of doors. We have now some splendid rows that were planted with pieces of roots that had been forced last season, and will be first-rate for lifting next winter. We have finished planting, the pieces of roots, &c., being sufficient to fill as much ground as we lifted. We may here repeat how we had such fine heads out of doors. Common garden-pots are used, say from 8 to 12 or 15 inches in diameter. These pots are filled with rough hay packed towards the sides, leaving a hollow in the middle. The plants or shoots inside, as they rise, are thus well blanched, and without any covering to the pot outside they are protected from extreme heat by day and extreme cold by night. We have beds which we meant to cover with ashes, and thus do away with pot-covering altogether, but we found we were hard-up for time to wheel the ashes, and the pots do very well. What we thus cut from pots in the open air, we do not generally take up for forcing the first winter.

Potatoes are pushing through, and Asparagus has come freely since the 14th of the month, sooner than we expected. Carrots and Onions are coming up strongly and regularly. We must put in successions of these, Peas, and Beans.

*Soil*.—Almost everything required in a garden now costs money before it gets there. From the drift and clearance by the sides of roads we used to obtain our best helpers for indoor and outdoor work. We have had many a load of sand washed from the roadway by heavy rain, and when reworked in a tub we would not have exchanged it for many purposes with the finest silver sand; but now all such raked and washed heaps are only to be obtained by contracting for them at certain prices, and removing them on certain conditions. We have frequently advised our cottager and amateur readers to obtain fresh soil for their plants from the sides of lanes and high-ways. If not strong enough in pocket to take off the turf and keep it for a twelvemonth before using it, it was no difficult matter to obtain a basketful of sweet mellow soil from the stratum immediately beneath the turf. We fear now that what seemed to be set little store on by most people, will in many places not be procurable without leave asked and obtained, and paying down something besides. We know of no better mode than the above for obtaining fresh sweet soil. When even such means cannot be resorted to, there need be no difficulty in securing some suitable soil for general purposes, and for potting common plants, wherever there is enough spare ground in the kitchen garden to be rided up and exposed to the weather all the winter. In fine days early in spring the surface soil of these ridges will be sweet and flaky, and if scraped off a half an inch deep or so, and laid aside either in basketfuls or barrowloads, there is hardly anything except hair-rooted plants that will not thrive in it. For pot plants, as *Pachisia*, *Polargonium*, &c., will answer admirably, more especially if kept open with a little small charcoal. Our farming friends need never be at a loss for the best of all soil for their plants, covering seeds, &c., as from a field rided up in winter it will be easy to obtain loads in spring by a mere scraping-off from the surface. Such sweet well-aired soil, even the finest concocted compost would not beat for Cucumbers, &c.

#### FRUIT GARDEN.

Between the rows of Strawberries out of doors we hoed all the ground to remove insignificant weeds. We shall also slightly dress the rows, and if rain threatens will dust the plants over with lime and soot, which will help to keep blights, &c., at a distance. As yet we do not see that mice, &c., have meddled with the plants, though they made sad havoc with those in pots. In some scores of instances, however, where the bud seemed gone fresh leaves and trusses are now coming from the sides, so that though they will be late, we find that some scores of pot plants will be of more use than throwing them to the rubbish-heap. Those heaving want plenty of water in this weather, and after they are set a syringing in the afternoon does them much good, and keeps them clean. Red spider is the great evil to avoid in such weather. Saltpetre on the heating medium and a free use of the syringe are the best antidotes. When the fruit is fairly set, and before swelling much, syringing with clear soft-soap water is a great preservative from red spider. We have thus syringed our earliest orchard house where a few of the black fly had made their appearance, and must be stopped at once, as one fat fly will soon emit a string of young like a rope of Onions. In using soap water, it is well to have it clear and

not too strong. A pound will be enough for from thirty-six to forty gallons of water. The soap should be dissolved in a pail of hot water, be allowed to stand all day, and then be poured out gently so as to intercept all residue, if any. It is as well to pour at once in warm water, and then add cool and soft, so as to apply it at about 80°. This will be strong enough to be offensive to all intruders, but you will see no marks left next day from a heavy syringing.

The second orchard house is not yet fit to be syringed; the Peaches, &c., on the back wall have set nicely, and the Cherries and Plums in pots in front are just beginning to set after being great pictures as respects bloom. The trees on the back wall are by far the earliest. In these houses Peaches are blooming nicely. With plenty of air in this house the Cherries in front are not above a week in advance of those on the wall out of doors, but then we can bury them on if we like afterwards. In these houses, with air early given, and the roof slightly spattered with whitened water, we have noticed that a thermometer suspended with its wooden back to the sun would rise to 90°, 95°, or nearly to 100°, and yet you could go about in the house as if the temperature had been merely 60° or 70°. There is little danger in these houses, with large plates of glass, if air is kept on constantly, or given early, so that the temperature rises gradually, and there is no accumulation of heated vapour. If the heat of such a house rose gradually with air to 90° by day, and fell as gradually to 40°, or lower, at night, there would be anything but ground for alarm. We are not, it is true, to imitate Nature, but we shall generally be wrong if we strive to do the very opposite of what she is doing in reference to temperature every day. Our Vines in the orchard house that we shut up earlier, owing to this sunny weather are pretty well as forward as those in the late vinery. We would rather have had both a little later, but it seemed to be a pity not to take advantage of the cheapest and best of all heat—sun heat.

For once on the open walls we have need no protection this year, and as yet we do not regret it. Apricots are setting well, and Peaches are beginning to do so on a west aspect. A large number of Apricot blossoms dropped; a good many were imperfect flowers.

#### ORNAMENTAL DEPARTMENT.

Plenty of water, but chiefly a repetition of propagating, pricking-off, potting, planting out, mowing, &c. One matter we must advert to, as several correspondents have drawn our attention to the subject—*using dirty or wet pots*. The purport of some half a dozen communications from young enthusiastic amateurs may be summed-up in this—“We wanted to turn out a lot of potted plants into a bed in order to make use of the pots, but out the plants would not come as they ought to do, with a clean smooth ball, but in the ball would stop after all our thumping and pushing; and if it did come out at length, a part of the ball and the roots remained obstinately at the bottom and the sides of the pot, thus greatly injuring the roots. How are we to remedy or prevent such a state of things?” We are not sure as to a remedy; we are quite sure as to a preventive. We wanted to do a similar work the other day so as to set at liberty several hundred small 60-pots for another purpose, but on trying them we found that in fully one-half of them the roots clung tenaciously to the pots, or the balls came out all ruptured and cracked at the sides. The man who potted the plants was sent for, and stoutly contended that the pots were all fresh washed before being used, but when further pressed he owned that the pots were not dry when used. Here, then, is the remedy—a clean pot and a dry one, and with fair drainage, then the ball ought always to come out easily without breaking, cracking, or hurting a root. When we see people taking a dirty plan in which to pot a plant, we cannot help wishing that their hair or whiskers might be well pulled, as a gentle reminder of what the roots suffer when it becomes necessary to remove them from that pot. We find nothing better for washing pots than warm water; the warmer the water, so that it is not too warm for the operator, the sooner will the pot dry, and then with a dry clean pot and good drainage, the ball will always come out easily clean and bright without breaking. When balls refuse to come out, or come out broken, and soil is left furrowed on the sides of the pot, you may safely come to the conclusion that a slovenly potter and a dirty or wet pot have gone together.—R. F.

#### TRADE CATALOGUES RECEIVED.

John Scott, Merriott Nurseries, Crewkerne, and Yeovil.—*Flower-Garden Annual Directory and Catalogue of Bedding Plants, &c.*

Kirk Allen, Brampton, Huntingdon.—*Descriptive Catalogue of Pelargoniums, Fuchsias, Petunias, &c., and List of Seedling Annuals and Biennials.*

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending April 26th.

DATE.	BAROMETER.		THERMOMETER.					
	Max.	Min.	Air.		Earth.		Wind.	Rain.
Wed.. 20	29.065	29.935	80	84	54	48	S.	.00
Thurs.. 21	31.134	30.043	73	29	63	48	S.W.	.00
Fri.. 22	30.265	31.108	70	40	63	48	S.	.00
Sat.. 23	30.388	31.245	64	21	55	49	N.W.	.00
Sun.. 24	30.395	30.575	63	43	61	49	W.	.00
Mon.. 25	30.378	30.263	69	34	54	48	W.	.00
Tues.. 26	30.195	30.019	63	32	62	49	N.W.	.04
Mean..	31.233	31.117	69.29	55.00	53.14	48.43	..	0.04

20.—Very fine; exceedingly hot; clear and very fine.

21.—Very fine; clear and very fine; fine but cold.

22.—Fine; very fine; densely overcast at night.

23.—Fine; very fine and clear; fine cool air.

24.—Overcast, cold wind; densely overcast.

25.—Cloudy; fine, heavy clouds; clear at night.

26.—Cloudy, cold wind; fine but cloudy; showery.

#### TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

BOOKS (G. Pymon).—There is no book containing colored drawings of all the species of either the flowers, trees, or shrubs cultivated in England. A large proportion of the flowers are to be seen in the more than one hundred volumes of the “Botanical Magazine” and “Botanical Register.”

FREE GARDENERY (Dumbartonshire).—We believe there is no “Free Gardenery” in England, though the brotherhood is strong in Scotland. We never heard that it helped to make a man a better gardener, any more than freemasonry made men better stone-masons. Of this you may be certain, “it confers no benefit on the brotherhood in England.”

GARDEN NETTING (R. M.).—We think that 1 lb. of acetate of lead and 1 lb. of alum dissolved in a gallon of water, would be good proportions for preserving the netting soaked in it.

LOOPER'S PROPAGATING BOXES (J. H.).—We do not know of any way of getting a bottom heat to them except by placing them on a heated or fire- or hot-water pipes.

WILLOW BANK.—A round paper box from a place so named has reached us, with a note saying “A bloom is enclosed.” The box was smashed, and there was no bloom in it.

CINERARIAS (Cloughton, Birkenhead).—It is not unusual for well-cultivated plants of the Cineraria to produce the abundance of flowers you mention. Exhibition specimens produce three or four times the number of flowers. You must be growing your plants very well. We regret, from your letter having been mislaid, this reply has been given so tardily.

SHRUBS FOR SHELTER (Athenic).—It is now too late to plant shrubs unless you have them on the spot, can move them with good balls, and can water them. We planted last year about this time two acres of ornamental shrubs, and none of them failed, except a few plants of Berberis Darwinii. The best of all trees for shelter is Pinus austriaca; it withstands wind better than any other, and should form the back of all shrubberies at the part they are most exposed. Thujaopsis borealis is an excellent tree, of comparatively low growth, for exposed situations. We recommend these for the back, if it is exposed to the north-east or west. If much exposed you may employ the common Elder, though nothing does better, and if trees are wanted, Sycamore is best of all. Of shrubs, have Aucuba japonica, Berberis Darwinii, E. Aquifolium, Tree and Miniature Box, Coleus, common, and Portugal Laurels; English and Irish Yews; Hollies, green and variegated; Evergreen Privet, Oval-leaved Privet; Narrow and Broad-leaved Alaternes; Spanish, White Portugal, and Yellow Broom, and Laurustinus. All the preceding are evergreen. If you wish for deciduous flowering shrubs, Alabaster, Lilacs, Philadelphus, Snowy Mesquites, Gueldres Rose, Thorns, Double-flowering Cherry, Variegated Dogwood, Deutzia scabra, Mountain Ash, Cydonia japonica, Ribes, and Spirea arifolia, callosa, Fortuni, and Thunbergi. Plant them in autumn, so that the leaves have fallen, but if you plant them for shelter but evergreens, then plant as soon after the end of September as you can, choosing showery weather.

MANURE FOR FORCED CUCUMBERS (—).—We have no doubt of the efficacy of the manures you name, but we think guano a very good manure applied in a liquid state once or twice a week, and at the rate of 1 oz. to the gallon of water. We have used that, and also a liquid formed of a peck of sheep droppings, and the same quantity of soot, in ten gallons of water, allowing the mixture to stand twenty-four hours, and then straining it well up before using. For the midweek we advise the infected plants to be treated with flowers of sulphur, picking off the worst leaves. Give more air, especially at night.

VINES FLAGGING (H. E.).—The cause of the Vines flagging is the excessive evaporation occasioned by the very bright weather we have had. We have two vinerias, like yours planted in 1863. The Vines have also somewhat flagged during the very bright weather, but are now completely recovered, and yours will also do so, only you must not keep them too warm at night. Keep the house moist by day by frequently sprinkling the paths, wall, and other surfaces with water. If you do this, and the Vines still flag, shut them for a few hours during the hottest part of the day with some thin shading material.

VINES AND AZALEAS INFESTED BY THRIPS (F. F. D.).—The Vine leaf

and Azaleas sent us are infested with thrips. The insect has been communicated to the Vines by the Azaleas. The atmosphere is too dry both for Vines and Azaleas, and we advise you to syringe them two or three times a-day, unless they are in flower, syringing all suitable surfaces with water two or three times a-day. The house should be fumigated with tobacco two or three times—say on alternate evenings for a week, choosing a calm evening, and filling the house with smoke. The house should be shut up closely, and the foliage must be dry when fumigation is practised, but the doors may be wet. Repeat the fumigation whenever you see any thrips.

**BLACK FUNGUS ON PELARGONIUM LEAF (E. D. S.).**—The black on the leaf sent us is occasioned by the plant standing near or under some plant infested with aphides, or scale, being a secretion of these insects which in time produces a black fungus, and does no injury to the leaves beyond closing their pores and disfiguring them. It may be washed off with a sponge, the leaves being well wetted previously. The remedy is to place the plant among others free from insects. The worst leaves should be picked off.—G.

**CALCEOLARIA GROWER (A Constant Reader).**—We do not know to whom you refer.

**STRAWBERRY CULTURE (H.).**—See No. 412, page 140; but we think the article you refer to was that by Mr. Luckhurst, in No. 437.

**FLOWER BEDS (Inexperienced Amateur Gardener).**—The figure given, planted with Pelargonium Stella and centred to about one-third with Calceolarias, will do well. With such a fierce hot French sun and such a light soil, we would scarcely raise the beds at all, but have the most of them an inch or so below the grass level, using larger plants for the centre. Even raised beds, if deeply trenched and mulched on the surface, will do well in general, but in such light soil we would rather have them level.

**WATERCRESS CULTURE (W. B.).**—The trenches in which they are grown are so prepared, that nearly a regular depth of 3 or 4 inches can be kept up. These trenches are 3 yards broad, and whenever one is to be planted the bottom is made quite firm and slightly sloping, so that the water which flows in one end may run out at the other. If the bottom of the trench is not sufficiently moist, a small body of water is spread over it to enter to soften it. The Cresses are then divided into small cuttings, with roots attached to them; and these are placed at the distance of 3 or 4 inches from each other. At the end of five or six days a slight dressing of well-decomposed cow dung is spread over all the plants, and this dressing is repeated by means of a heavy board, to which a long handle is obliquely fixed. The water is then raised to the depth of 2 or 3 inches, and never higher. Each trench is then replanted annually, and furnishes twelve crops during the season. After every cutting, a little decayed cow dung is spread over the naked plants, and this beaten down by means of the rammer above mentioned. After the Watercresses have been thus treated for a twelve-month, the manure forms a tolerably thick layer at the bottom of the trench, and tends to raise its level. To restore it to its original level, all the refuse should be thrown out upon the borders which separate the trenches from each other. The borders may be planted with Artichokes, Cabbages, or Cauliflowers.

**DESTRUCTING ANTS (Sutton).**—Ants may be driven away by sprinkling rumso in their holes, or their nests, and ammoniacal liquor from the gas works will destroy them. Charles's compound at the rate of 2 ozs. to the gallon, syringed over the plants and house at intervals, will do the same.

**INSECT—GAS LINE (R. J. G. P.).**—We are as grateful as we ought to be for your sympathies with us for being so much questioned, but we should have considered it a greater compliment if you had not respectfully mentioned our heads as "wiser," not as "older," than your own. The insects you enclosed were not wireworms, but snake millipedes (*Julus terrestris*). They may injure the roots of some plants, and the germinated Peas which you enclosed, but the latter was more probably injured by the gas line with which you covered the seeds. It is far too strong ever to be placed in quantity about germinating seeds. The injured seed would be then food for the millipede. The only "wholesome cure" is to sift the soil and destroy the insects retained in the sieve.

**NAMES OF PLANTS (H. E. Umberley).**—*Acor rubrum*. (C. P., Wincanton).—*Sophora* (or *Edwardsia*) *tetrapylon*. It may be the variety *microphylla*, which is more generally cultivated, but your specimen is insufficient. (C. W. W.).—*Luzula plicosa*. (E. W. Norton).—1, *Pteris flosculosa*; 2, *Belagialia robusta*; 3, *Marshallia*; 4, *Anaspisium*, but too young to determine; 5, *Polydictum aculeatum*; 6, *Lasianthus hispidus*. (H. W. Cornwall Reader).—1, *Boraginaceae*; 2, *Acacia Drummondii*. (H. J., Foto Island).—1, *Forsythia viridissima*; 2, *Saxifraga oppositifolia*; 3, *Ordnus vernus*; 4, *Monarda officinalis*. (A. B., Kendal).—3, *Platycodon alcinorum*; 4, *Polydictum aculeatum*; 5, *Belagialia robusta*; 6, *Platyloma rotundifolia*; 8, *Franciscana eximia*; 9, *Pellaea adiantifolia*; 10, *Pasiflora kermesina*; 11, *Lomaria gibba*; 1, 2, 6, Leaves only were received and these we cannot undertake to name. (*Ignoramus*).—1, *Petasites vulgaris*; 2, *Anemone hortensis*; 3, *Cardenia hirsuta*; 4, *Hieracium Spheculium*. The remainder next week. (*Apt. Dublin*).—*Forsythia viridissima*; *Linsiris Cymbalaria*. The Composite and Crucifer next week. (*Marten Calif.*).—*Corydalis thibetica*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### STIMULATING POULTRY FOODS.

I HAVE had during the last few months—indeed, ever since the discussion on the subject last autumn—to answer so many letters privately asking my opinion on giving stimulating or condimental foods to chickens and poultry, that I would be glad to say a few words on the subject through "our Journal," especially as at the present season the question is of peculiar importance. I do not propose to say anything for or against any particular nostrum, for my experience and belief is, that after all, the various compounds advertised are in their active principles and effects very much alike; but I shall endeavour

simply to state what experience in my own and other yards has taught me regarding the use of stimulating condiments of any kind.

And, first of all, I am bound to say that the glowing panegyrics of some makers are inconsistent with themselves. If a man tells me his food will produce great size, I do not dispute that; if he tells me it causes quick maturity, so that the pullets will often lay at four months old, I do not dispute this either; but if he tells me it will do both, I am bound to say that the two are incompatible. In all large breeds of fowls the size attained depends very materially on the degree in which maturity can be postponed; and, no matter what may be said by interested parties, the same feeding which causes forced and rapid growth during the very early period of chickenhood, will of necessity, if continued beyond this, result in stunted, because precocious, adults. It may be thought this is mere theory; if anyone will try, he will find it is practice also; you cannot have eggs at four months, and at the same time large birds. I think it will almost always be found that the strongest advocates for the constant use of these stimulants are those fanciers who keep the smaller breeds, and with whom red combs and handsome appearance are of greater importance than large frame.

Not much more can be said respecting mixtures of "the finest kind of meal." No meal is better than, or so good as, oatmeal, and this can be obtained from Scotland at a far cheaper rate than many imagine. Its only fault is that chickens are apt to tire of it; but in a mixture of sharps and barleymeal we have a change of food which is nearly as good. I like to mix some barleymeal even with the Scotch staple, which is rather too dry a food unmixed for fledging birds; but any fancier who goes beyond these three meals (in which I include the ground oats of Sussex) will go further only to fare worse.

These things having been stated, however, I can say without hesitation that condiments are of the greatest value when rightly and reasonably used. They will often save chickens which would otherwise perish, they will often recover drooping fowls, they will often add that indescribable "condition" which makes a winning pen. In trying weather I always give condiment to young chickens so long as the cold or the wet lasts, and the same if they droop while fledging, or lose health or condition on any other cause. The effect is often most marked on such occasions. I also give stimulating food to old birds in very bad weather, or while moulting, or if the hens do not lay at the due time in early spring; but in any case, whether with young chickens or old birds, as soon as the desired effect is produced the spice should be discontinued; with the return of fine weather, or the recovery of the bird, the usual plain diet should be restored, or the result will be prejudicial both to old and young. In the former, inflammation of the egg organs is a frequent result of the continuance of stimulating food, and has in my own knowledge often occurred in birds which have had it for too long a time in order to prepare them for exhibition. A fortnight for such a purpose is ample, and should not be exceeded; indeed, I am myself convinced that few healthy birds can be fed on spiced diet to any extent for a longer period without evil effects of some kind being caused thereby.

When thus used with judgment and moderation, Dear's well-known food will often produce wonderful effects, and so will several of the compounds known and advertised as "cattle food." For many purposes, however, it is well to have a concentrated seasoning at hand, with which the meal can at a moment's notice be seasoned at pleasure; indeed, I am convinced that if the various advertisers would sell their seasoning alone, unmixed with any meal at all, it would not only save much carriage on the bulk, but insure a large sale, and be of far greater benefit. In default of this, I will give a prescription of my own, which, if added to the usual food in sufficient quantity to cause a slightly sweet and hot taste, and used as above recommended only, will, I believe, be found equal to most other compounds.

Powdered allspice or pimento	2 ozs.
" black pepper	2 "
" ginger	2 "
Malt dust	1 lb.
Brown sugar	1 "

This or any other similar mixture should be kept dry in a well-stoppered bottle. Other spices may be added, and in some cases a little sulphate of quinine is of marked effect in cold or wet weather. In nearly all cases where condiments are required, sulphate of iron added to the drinking water is of the



exception of the space between the floor and the lowest shelf, should be divided in the centre by a partition. In front of these shelves should be nailed four boards, also a foot wide and 5 feet long; one at each side of the pen and two down the centre, all reaching from the top to the bottom shelf. This will give breeding places for ten pairs of birds; these will be 3 feet long by 1 foot wide and 1 foot high, with a blind at each end behind which to put the nest pans. The two spaces between the top shelf and the roof should be fitted with lath fronts made to hang by hinges from the roof, and these will be found most useful either as pairing-cages or to pen birds in. The floor of the pen should be left entirely free, with the exception of the water-bottle, the mortar-pan, and the salt; all of which should be placed under the bottom shelf to keep them clean. Each side of the pen should be fitted with perches made in the well-known triangle shape. A little strip about an inch wide should, however, be nailed across the angle to prevent the sharp edge from injuring the feet of the birds, and to enable them to rest comfortably. The perches should be from 3 to 4 inches wide, and placed about a foot apart. They can easily be fixed by nailing them to a strip of wood, and so screwed to the side of the pen.

I have omitted to state that a door made of stout laths should be fixed to the pen in such a manner that the outer door may shut over it. This can easily be done by nailing a lath on each side of the door inside the pen; one to hang it on, and the other to fasten it to. The inner door should be made to open outwards the same side as the outer door, by placing the perpendicular laths about an inch nearer the centre of the doorway than the width of the outer door. This inner lattice door is to give light, air, and sunshine to the birds; the outer door, of course, to lock up safely at night, and to keep the birds warm and comfortable in cold and wet weather.

A pen on the above scale is calculated to accommodate from thirty to forty Pigeons, and the cost of its erection will be about £2, which, again, may be diminished to somewhere about half if the fancier is at all handy with the hammer and saw, and able to erect it himself. Of course it is not intended that the pen should of necessity be made to the dimensions I have given. Everything, as I said before, depends upon the intentions of the fancier as regards the number of birds he intends keeping, &c.; but whatever may be the dimensions of the pen, the above principle should be adhered to as best calculated for the kind of birds of which this article treats.

It may be as well to state here that the inside of the pen should be well lime-washed once or twice a year, and the floor and breeding places kept well sprinkled with sand, which will render it healthier for the birds, and easier to clean out. I would recommend that the latter process should be performed daily. It can be done in the following manner in five minutes, and the little extra trouble will be amply repaid by the better health and breeding of the birds, and the pleasure of seeing them always clean. Scrape out the dung from the shelves on to the floor, and then, having scraped all into a heap, pass it through a fine riddle, taking the excrement away and using the sand again.

Before I say anything about the birds I should like to make a few remarks in reference to my former communication (see pages 214 and 215). I have been informed that it was thought I meant to convey the impression that there are no dark-winged birds that are good in the air. Such was not my intention; all I meant to infer was that such birds, even when good, were not general favourites amongst the best flying fanciers; for although they may really work as sharp and fly as freely as white-winged birds, yet they do not seem to do so; and two or three of these birds amongst a flight do not at all improve its appearance in the air, where, except for their style of flying, they look as nearly like crows as possible. One of the prettiest sights afforded by a flight of white-winged birds is to be seen on a bright morning or evening, their white digits twinkling in the sunshine, and all their varied colours brought prominently in view. One of the longest and best rollers I ever possessed was a dark-winged and muffed bird; and at this present time I have an esteemed friend and thorough fancier who flies nothing else but these dark-winged birds, and all as good as they are handsome. His birds are Black and Red Mottles, and of colour and marking far surpass any of the Short-faced birds. Then comes the question, Would many fanciers be at the trouble and expense of breeding to such beauty and accuracy of marking—for they are beautiful in the loft there is no doubt—to run the daily and hourly risk

of flying them away? "READER" says that my remarks in reference to these dark-winged and muffed birds are merely fancy, and he is quite right. Pigeon-keeping from beginning to end is all fancy, the only question being which is the best fancy, and this point I, as a true lover of Pigeons, hope will never be solved, or we should very soon lose many of our numerous varieties. I can assure him that if he gets a strain that has been bred white-winged and clear-legged, and does not cross them at any time with either dark-winged or muffed birds, he will not, as he has done, get a white-winged and dark-winged young bird in one nest, or one muffed and the other clear-legged. The parents or grandparents of his birds had been paired in that way, and it is well known what a tendency there is in Pigeons to throw back in breeding. I stated that in Birmingham as a rule very little heed was paid to the colour of birds in matching them, and that in consequence their colours are various. I have now amongst the birds I keep as feeders for my fancy birds, a Tumbler cock which is blue chequer on one side and a red spangle on the other, and a Red and a Blue have thrown a Yellow. How is that to be accounted for except by throwing back?

And now to return to our subject. There are two methods of raising a flight—either by purchasing young birds from a good stock, or three or four pairs of old birds known to be good, and so breed what is wanted. In either case I would recommend the fancier in starting to purchase a few common flying Tumblers, which he can do at about 10s. to 12s. a-dozen. I recommend this for this reason—that he must have some old birds with which to train his young ones. No serious loss would be sustained if he loses one or two in getting them stout, and he will be saved the risk of losing his more expensive birds, which he need not fly till they have bred what young ones he requires. When the common birds have answered the purpose for which they were bought, they can either be sold or put in a pie. I would further recommend that the new birds should be confined to the pen till they have settled down and got used to it, when they should be let out a few at a time towards evening, having been kept without food the whole of the day, and a further precaution if necessary may be taken by tying one wing of each hen bird. After giving them their liberty a short time get them in again by feeding in the pen, and this plan should be repeated for three or four days till they know the premises. It would be best not to fly them too soon.

And now having got your common birds stout as a foundation to work upon, and purchased three or four pairs of good birds, we will consider the best method of breeding, training, and feeding in a further communication.—H. T., Birmingham.

**TAMPERING WITH THE PLUMAGE OF SHOW BIRDS.**—We are glad to find a very general approval of Mr. Hewitt's suggestions, and we may quote as an instance, that the Committee of the Whitby Poultry Show have made a stringent rule with the view of stopping so nefarious a practice.

## NEW MODE OF CONTROLLING THE FERTILISATION OF THE QUEEN BEE.

So long ago as February in last year I received a very kind letter from Mr. Thomas, an excellent and practical apiarian of Canada, informing me that during their last session (1868) a discovery has been made which threw the KÖSLER process quite into the shade, "since by it we can cause a queen to be fertilised by one out of any four or five drones which we may select." This discovery was stated to have been made by an American lady apiarian, a breeder of Italian queens, whose name was withheld at the time, but who, I have reason to believe, is Mrs. E. S. Tupper, of Iowa, U.S., and it is thus described by Mr. Thomas:—

"On the fifth day after the queen is hatched, or earlier if you choose, although the lady thinks queens seldom take their bridal tour before the fifth day, catch her and confine her with four or five select drones in a wire cage with honey in the comb or in a sponge, and place the cage on the top of the nucleus or stock from which she was taken, and let her remain from twenty-four to thirty-six hours, covering her up with the cap so that it will be quite dark. She will be fertilised and commence to lay soon after being liberated. The lady makes the cage 6 or 8 inches in diameter, and 12 or 14 inches long; the ends may be made of wood or of pasteboard. She says she

leaves the queen twelve, twenty-four, or thirty-six hours according to weather, and places the cage on the frames of the hive."

Now all this being imparted to me under the seal of secrecy I was not able to communicate to any one else, and to confess the truth I was so firmly impressed with the idea that there must be some mistake, and that queens would certainly not mate whilst held in durance in this manner, that I did not take the trouble to submit the matter to the test of actual experiment, but, like Mr. Micawber, waited for something further to "turn up." Contrary, however, to my expectations, something farther has turned up, and I can no longer delay submitting the whole to the apian readers of "our Journal," in order that it may be fully tested and reported upon by them.

In January last a letter was published by a Mr. Moore, of Ohio, in which he stated that he had succeeded in getting queens fertilised by confining them with a few drones under a winglass or tumbler placed in the sun, also by confining them in a lamp chimney with the upper end stopped by a cork, and the lower end fitted into the feeding-hole on the top of the hive, egress in this direction being prevented by means of wire cloth. These plans he had tried very often and "succeeded about half of the time." He had also tried Mrs. Tupper's process, and was successful to a reasonable extent.

Finally a letter from a Mr. Malone, of Garden Island, has appeared in a recent number of *The Toronto Globe*, in which he recapitulates the process pretty nearly as it has been already described by my correspondent Mr. Thomas, and relates how well he has succeeded with it.—A DEVONSHIRE BEE-KEEPER.

### NEW BOOK.

*The Handy Book of Bees.* By A. PETTIGREW. Blackwood and Sons, Edinburgh and London.

[SECOND NOTICE.]

WE come now to the practical part (Part II.) of Mr. Pettigrew's "Handy Book of Bees," where he is evidently in his element, and in every page we can detect the master hand—sometimes a little daring and self-opinionated, sometimes a little fanciful, but always interesting and instructive. "The most important chapter in the book," says Mr. Pettigrew himself, "is that on hives." Here he hits English bee-keepers very hard, averring that we are "apparently fifty years behind the day," and "have yet to learn the A B C of profitable management." In what respect? In one only; "the secret of profit" lies in keeping bees "in large hives." Our own experience goes along with Mr. Pettigrew in this particular, and we are fully persuaded that in nine cases out of ten in average good years the large hive will be found far more profitable than the small one in the hands of a really practical bee-keeper—by this we mean in the hands of one whose object is honey and not amusement, or mere experiment in the management of bees.

As to the material of which hives should be made, our experience is decidedly adverse to the straw hive. Here we differ from Mr. Pettigrew. Hives of wood we use exclusively, and find them in every way excellent. As to damp and rotten combs in wooden hives, we have no knowledge of such, and are persuaded that they are or ought to be unknown in a well-managed apiary. Of "bar-and-frame" hives, whether of wood or straw, we have no personal experience; but Mr. Pettigrew, who does not make use of them, admits that they are "very useful to the student of bee-history." Also, most useful are they in the multiplication of swarms, although certainly not necessary to the profitable management of an apiary.

Mr. Pettigrew gives his verdict in favour of the swarming over the non-swarming system, probably because he knows more about the former in the actual management of his apiary. We have tried both, and have always found the latter the more profitable; at the same time we should be sorry to give an absolute verdict in favour of the one system over the other. We doubt not that Mr. Pettigrew with his large hives makes his apiary more profitable than most English bee-keepers find theirs to be on the non-swarming system; and we are inclined to believe that the latter is hardly possible where very large hives are used. The vast crowds of bees thronging in and out of such hives by one entrance (and only one entrance should be allowed), must impede one another and incommode the workers and the queen within; at any rate Mr. Pettigrew's chapter on this subject is well worth careful reading. The same may be said of his chapter on artificial swarming, which operation he performs, as we ourselves do, by the very simple

process of driving. We agree with him that artificial swarming is indispensable to the perfect management of an apiary, and perhaps no simpler plan can be devised than that recommended by Mr. Pettigrew, although we ourselves adopt the plan advocated, and we believe invented by Mr. Langstroth, an American, which reduces the risk of failure to a minimum. It consists simply in driving a strong stock (A), queen and all, into an empty hive (a large one it may be) which we place exactly where the old hive stood. Then we shift another strong stock (B) to a new stand at some distance, and substitute in its place the deserted stock (this we may call C), out of which the swarm was driven. As this last hive will rear artificial queens, we utilise these much in the way Mr. Pettigrew recommends at page 132, and with their aid manufacture other swarms *ad libitum*. We earnestly advise all bee-keepers to learn the art of artificial swarming; with the aid of a little smoke-tustian or common brown paper—it matters not which—the operation may, after a little experience, be most safely and easily performed.

Having said this much on the salient points of Mr. Pettigrew's book, without partiality we cordially recommend it to the bee-loving public, and wish him every success.—B. & W.

### BEE EPIDEMICS.

IN answer to "A YOUNG BEGINNER'S" inquiry on bee epidemics in page 253, there are many causes why bees drop dead around the hive:—1st, sour honey; 2nd, foreign honey which has been fermented; 3rd, foreign honey which is mixed with sugar and prepared with oil of vitriol to give it the appearance of honey, of which there are great quantities sent to this country; 4th, poisoned with loaf sugar, a practice I have suspected for several years, but I have not been able to prove the fact satisfactorily until this winter.

The following are the symptoms when the bees are affected by sour and fermented honey:—The bees creep out of their hive and drop down; their bodies are swollen to a great size, and under the body you may perceive a white appearance all along the under side of the wing, and the smell from these that discharge is very unpleasant. Canded and sour honey will produce both dropsy and diarrhoea. Symptoms from feeding with loaf sugar:—The bees will take 4 lbs. of syrup in a day, and deposit it in their cells without their perceiving there is anything wrong, for you will find very few dead bees, as those affected fly away and never return. It is when they begin to live upon the stores they have deposited that they will run out of the hive and dance about as if they had been stung by other bees, and others will fly right off, according to the quantity taken. If you stand by your hives in the depth of winter, you will find bees flying out which have been poisoned by sugar. They will keep wasting all winter, and it may be some few left as late as spring.

I have lost three good swarms and one good stock from feeding with loaf sugar, which has been the cause of my finding out the source of the evil. Last September I had a good swarm which I thought wanted about 4 lbs. of sugar to make it a standard, so I boiled about 4 lbs. of syrup, and gave the bees nearly 2 lbs. the first night, next morning I found a very few dead bees; not thinking anything about it, I gave them the remainder next night. I went into the garden about 11 P.M., I heard bees every few minutes fly away from the hive, so I took away the syrup which was left, and next day I perceived the bees were getting less, and finding three other stocks were fetching it out, I drove the hive and cut all the syrup out; but the three stocks had taken part of what had been given, and all three stocks have gradually died off in the manner described, as I have watched them all the winter at different times, and have seen bees fly out, some dropping and dancing about, and some flying right off. The last died in March, leaving plenty of honey. I should advise, in using loaf sugar, not to select the strong-grained and dull-looking and that which has a bluish white appearance. As there is something useful in refining some loaf sugar which is injurious to bees, I have no doubt we have lost many of our favourites from feeding with sugar.—FORTY YEARS' EXPERIENCE, C. B. H.

### UNION OF A JACKDAW AND MAGPIE.

AT Luttermouth, where many wonderful things have happened before now, an admirer of these mischievous pets last year reared a Magpie, a neighbour some eight or ten houses higher



## WEEKLY CALENDAR.

MAY 5—11, 1870.

Day of Month.	Day of Week.		Average Temperature near London.			Rain in last 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	
5	F	Meeting of Royal and Linnean Societies.	62.9	39.0	50.9	22	28	47	27	47	7	morning.	125
6	T		62.3	38.5	50.4	16	26	4	29	7	23	8	126
7	W		60.3	39.4	49.8	18	24	4	30	7	25	9	127
8	TH	3 SUNDAY AFTER EASTER.	62.6	39.6	51.1	18	22	4	32	7	23	10	128
9	M	Meeting of Royal Geographical Society, 18.30 P.M.	62.6	39.9	51.2	19	21	4	33	7	47	11	129
10	TU		62.4	40.1	51.3	21	19	4	35	7	after.	13	130
11	W	Meeting of Society of Arts and Royal Microscopical Society, 8 P.M.	62.4	40.9	51.6	19	17	4	36	7	28	2	131

From observations taken near London during the last forty-three years, the average day temperature of the week is 62.2°; and its night temperature 36.6°. The greatest heat was 81°, on the 6th, 1862; and the lowest cold 20°, on the 6th, 1865. The greatest fall of rain was 1.56 inch.

## COMPARATIVE HARDINESS OF BEDDING PLANTS.



THE following notes were suggested by queries from a correspondent, "KITTEE."

I know of many instances in which the little greenhouse or greenhouse viney is a perfect picture in the winter, every inch available for plants and cuttings being stowed as thickly as possible. These all do well until the sun gains power in March and onwards, and then they begin to require more room. Here the difficulty of which "KITTEE"

complains begins, and many errors are made by turning out tender plants instead of comparatively hardy ones first. Many plants, though comparatively hardy, are also often injured by being turned out of the house into almost complete exposure to the open air, and thus the care of nursing through the winter has all been gone through in vain.

In ordinary seasons we begin putting out about the end of March lots of plants that had the protection of glass in winter, but this year, owing to the weather being so cold, we did not begin until the first and nearly the second week in April, though we would have turned out a good many in the first week if we could have found time. Success—in other words, preventing the plants being hurt or stunted by the change—consists greatly, first, in not exposing them at once to the full sun, nor yet to the cold nights, without protection. This is easily effected where there are cold pits or cold frames covered with glass, but these accessories are becoming more and more scarce for this purpose, even in large establishments, and are absent altogether in the numerous places where there is only one greenhouse.

In such a case, the most convenient place for the hardest is a position on the south-east or south-west side of a wall or fence, where the plants can be placed tolerably closely together, and be protected at night and during the hottest part of a sunny day with a mat, canvas, calico, or an old hurdle, thinly twisted with evergreen twigs. One of the readiest ways to do this quickly is to set a row of large pots, say at 6 or 8 feet apart, and at a suitable distance from the wall, on these lay a rough rail, and from that to the wall put cross pieces every 6 feet, with a light rail or rod longitudinally in the middle, so that you can have the mats tied together or the cloth rolled along easily, the rod being higher than the highest plants to be protected. A second mode I often practise is to throw out beds 4 feet wide for Celery, with 4-foot ridges. Some leaf mould and a little fine soil are placed in the bed or trench, and there we set lots of plants in pots and boxes; but they will do well if planted out pretty thickly, especially all those with fibrous roots, as Calceolarias, Verbenas, Cupheas, and Lobelias. A few sticks or rods laid across the bed from ridge to ridge enable one to protect the plants easily. Hurdles thinly thatched do well for this purpose. A third and better mode still is to have an earth or turf pit for the purpose, say a pit with the soil inside of the natural

level, but the front earth wall a foot above, and the back wall 2 feet above the level. About 5 feet is a good width. Such a bed need never be idle, but it is very valuable for all the hardiest of the bedding plants, and they will do best when turned out with a little rough rich soil about the roots, so that they may rise with a fair ball. The bed may be protected by the modes I have mentioned, and in other ways, but of all I have tried I have found no material so good and economical as double-width, unbleached, rather thin calico. It is not easy buying it cheaply at fully 2 yards wide, but it is easy to obtain it 6 or 9 inches narrower than the 2 yards in width. A piece of calico, if used only for this purpose, will last a good many years if put away when well dried by the sun; though ours is used for various purposes, we have some pieces seven years old tolerably good. In such a pit we lay sticks or rods across it at every 4 or 5 feet. Whatever the length of the calico, be it 5 yards or 15 or more yards, it is fastened at each end to the middle of a neat pole, say 2 inches in diameter, and 8 or 9 feet in length. On these poles the calico is rolled when taken off. The pole at one end being fixed with pegs, the other is unrolled as the planting goes on, so as to cover the plants. At the farther end, the calico is kept stretched by the pole being held firmly by the pegs. Besides this, at every 5 feet or so, strings are fastened on the calico back and front, and these strings, being attached to a peg in the turf wall, keep the calico as tight as an expanded umbrella, so that heavy rains are excluded if moisture is not wanted.

Now, to show the economy of this mode I will give just one instance of the saving of labour. With the help of calico I have frequently planted out lots of Calceolarias, Salvias, and Verbenas at 3 or 4 inches apart, watered them well about the roots, and left the drier soil as a covering on the surface, and except lifting the calico a little to give several syringings in very hot days, the plants were neither watered nor uncovered until a few days before they were to be finally turned out in the beds, and better, more suitable stuff it would not be desirable to see. Fully exposed, or under glass, in warm weather there would be the daily watering, whilst this is almost avoided by using the calico, which lets enough of light through for healthy growth, and yet gives sufficient shade to prevent rapid evaporation. Frequently, in planting out thousands of Calceolarias from the cutting bed, I have had no occasion to water, nor yet to uncover, until a few days before they were to be taken to the beds. Any sort of rough bed or pit, to be thus covered with a piece of unbleached rather thin calico, I can thoroughly recommend to everyone who wants to make the most of his little glass house.

Now, as respects some bedding plants and their respective hardiness.

CERASTIUM in ordinary seasons will stand all the winter; but though I have not done so this season, I would consider it more secure if, during the beginning of the winter, a good many pieces had been planted in a well pulverised border, even if 2 or 3 inches apart; these, if wanted, could be removed with roots and little balls.

VARIATED ATARIS, to be safe, should be treated in the

same way. The rooted plants enable the gardener to dispense with much watering.

**CINERARIA MARITIMA** is generally hardy, but some winters have killed the whole of ours. It is well to have a few young plants in reserve. It strikes best from small sucker-like shoots. It is easily raised from seed, but seedlings require to be in the second if not the third season before they become so silvery as old plants. After March very little protection will do for young or old plants; old plants are little injured that have stood out all the winter. We have just cut them down close to the ground, and if there should be a few vacancies, we have some plants to supply the gap.

**CENTAUREA CANDIDISSIMA**.—Last winter but one many plants stood out well, but in the past winter all went except those standing pretty high on a south aspect, though we put dry ashes round the stools. Many of the plants, though rotten at the top, seem to be fresh at the bottom, and it is possible they may push again. This plant, however, for general purposes does best when small plants are turned out. With a little protection in the coldest nights, young plants may be exposed after the 1st of April.

**CALCEOLARIAS**.—All the shrubby kinds will in general be better out of doors after the 1st of April, with the help of a little protection, the simplest being the piece of calico referred to. My plants or cuttings have generally a space of from 1½ to 2 inches each in winter; when turned out I generally give them from 4 to 5 inches, which enables them to be strong plants showing bloom when turned out finally about the 20th of May, or even at the end of it.

**PENTSTEMONS** and **CEPHEAS** are as hardy as the former harder than the Calceolaria, and like it do well planted out in temporary beds.

**KONIGIA VARIEGATA** is not quite so hardy, and does rather the best when taken from a shallow box, so that the roots will not run far. I have lifted it nicely from a bed, but the above method is the best.

**VERBENAS**, **LOBELIAS**, and **GAZANIAS** may follow in a few days, say a week, after the Calceolarias, and like them, if planted out in a bed, they will lift with good roots. If with any of these there be four or five plants in a small pot, it is a good plan to ruffle the outside of the ball, and turn out the ball nearly whole, packing the earth firmly against them, and dividing at the final planting out, as the fresh roots from each plant will extend outwards.

**PETUNIAS** are as hardy as the above, but they do best from pots, as if planted out the roots become too straggling. The same may be said of

**LINUM GRANDIFLORUM RUBRUM** and **GNAPHALIUM**, only they are more tender. The Gnaphalium should either be potted or kept in boxes not more than 2 or 3 inches deep.

**HELIOPTERIS** and **ACERATUMS**, in general, should not be exposed much until May. The Ageratums may be turned out towards the end of April, with a calico covering in a common season. That would hardly suffice for Heliopteres, as they are more sensitive to cold in the spring than to a little frost in the autumn.

**TAGETES**.—All the tribe produce plenty of fibres, but in most seasons they should not be exposed until the middle of May. Half-hardy annuals succeed best when not sown too soon so as to require much coddling before they are turned out.

**TROPEOLUMS** of sorts, when raised in a house, should not be fully exposed until the middle of May. They often do better when sown out of doors at the end of April or the beginning of May.

**STRIED MAIZE**.—To have strong plants this should be kept in the greenhouse until the middle of May, and then be hardened off with a little protection by the side of a wall before planting it out. It even then requires a warm place to do well out of doors. It succeeds best under glass.

**FUCARIAS**, to bloom well out of doors, should not be forwarded much under glass, as the more forward they are the more will they suffer from the change when breaking freely. They should be planted out under a little protection by the middle of April. The less lengthy the shoots, when turned out towards the end of May, the better will they bloom in the summer and autumn.

**CANNAS**.—If you have plenty of room get these well forward, turn them out under a little protection at the end of May, and plant them out about the middle of June. Where there is not room to grow them in doors, it is as well not to encourage them to grow above a foot or so before you turn them out to garden, say at the beginning of May. If for such you could

make a slight hotbed under the bed, and plant the rather backward plants about the beginning of June, you would have fine foliage in the autumn if the place were pretty well sheltered from winds. I hoped to make a fine feature with Cannas, and with a little bottom heat obtained fine foliage and spikes of bloom, but every season when there was a brisk gale in our exposed place the fine foliage was torn, not merely to ribbons, but to strings and threads.

**PERITHORN GOLDEN FEATHER**.—This plant is also mentioned by your correspondent, and is said to be quite hardy. I suspect it is about as hardy as *Cineraria maritima* and *Centaurea candidissima*. A great many of our plants in the open air died this winter. Those in boxes in a cool orchard house seem all right, though left to themselves. Young plants seem to have the strongest vital powers, which is in this case an advantage, as the younger the plants the better they answer, and the more free are they from flowers and seeds. Seedlings, from sowing under glass late in autumn or early in spring, will, when pricked off and finally planted out, give more satisfaction than older plants. Seeds seem to come quite true. Plants, unless in extreme cases, would be quite safe if kept protected in winter and turned out in March. Of course, spring-rose plants should be kept under protection until April or May.

I have also omitted to refer to the **BEDDING PELARGONIUMS**. All the sections of large flowers, Nosegays, and Variegated, as a general rule may come out of the house after the Calceolarias, and at the same time as the Lobelias. All the green or horsehoe-leaved kinds are very similar in hardiness, and all should go out a week or ten days before the variegated-leaved sorts—Gold and Bronze, Tricolors, &c. The latter will be the better of protection until the middle of May. The commoner Scarlets will do well under calico after April. Of course in a very severe night a little straw, or evergreen branches, &c., must be placed above the calico. Where immediate effect is wanted, all Pelargoniums do best when turned out of pots. We have, however, planted great numbers in temporary beds, and raised them with less or more of a ball. In such case there was generally a flagging and a withering of a few leaves, but the plants quickly recovered themselves. This tribe do well when potted in small pots, so as to form a ball, and then planted out as stated for Calceolarias, as the ball will hold, though there are plenty of wig-like fibres all round it.—R. F.

## GRAFTING VINES.

THE Vines in late houses which are now coming into full leaf are just in condition for grafting, and the operation may therefore be performed. Vines are very easily grafted, when grafting is done carefully, and when both the stock and scion are in proper condition. When the operator understands what grafting is—that it is simply the placing together two pieces of a plant in such a position that the rising flowing sap of the one, which is the stock, may intermingle with that of the other, which is the scion, and that these juices becoming united form one wood, and then the union is complete—he will the more readily understand the conditions in which each part should be.

In most cases grafting is performed just previous to the commencement of active growth, or when the sap in the stock begins to flow, the stock being somewhat in advance of the scion. The Vine, however, if cut at that period has such an exuberance of sap, that it is apt not only to injure the graft but to bleed itself to death, and grafting then is, consequently, seldom a success; and if we graft much earlier, there is the danger of the graft drying up. The time, then, which I have found the most favorable is just at the decline of the flush of sap, when the first leaves have about fully expanded and are able to draw up the end juices, but while it is still flowing. The exact condition may be discovered thus by just making a small cut in the stem, when, if it bled freely, wait a day or two; if but slightly, then graft at once.

The scions should in the meantime also be a little excited, so that when cut a little moisture is observed. The best and surest eyes to use are those which have been buried in some moist soil, which feel soft and moist, and just show signs of growing. To put on a hard dried-up eye is of but little use, as it will but very seldom grow.

It is desirable, in grafting, to leave a shoot beyond the graft to draw up the superabundant sap for a time. This, however, as soon as the graft is fairly taken should be destroyed.

Bad-grafts may be put on now all over—on every part of the stem if necessary. It is a good practice to make good blanks

amongst the side shoots which may have been broken in tying down. The bud may be cut to about 1½ inch in length, and a corresponding piece cut out of the stem, so that it may fit in exactly. I have clothed many very naked stems in this way. The thickness of the bark of Vines is very variable and exceedingly deceptive. Have a care, then, that the inner bark is reached; that a corresponding piece of the wood of the stock is reached to that of the scion. Bark to bark, we are told, is the rule in grafting; but it should be the edges of inner bark to the edges of inner bark, for it is there only that the union takes place.

After having fixed the grafts and tied them, cover over the part with Mastic L'Homme Lefort, the best material which can be used for grafting Vines.—ARCHAËAUS.

## WINTER-BLOOMING ORCHIDS.—No. 5.

DENDROBIUM.—Continued.

D. HETEROCARPUM is a very pretty and easily-grown species, which, during the last dozen years, has been somewhat overlooked by what I call aristocratic Orchid-growers; lately, however, we have had some rather extensive importations of this plant, and these have proved what a useful and beautiful winter bloomer it is. The stems are nearly round and pendulous, producing oblong, acute, dark green leaves, which are, however, deciduous. The flowers are produced very freely, and are deliciously scented; the sepals are linear-oblong and acute, the petals ovate-acute; both are thick in texture, and deep primrose yellow in colour; the lip is somewhat saddle-shaped, deep yellow, with two deep crimson spots towards the base. In some varieties the colours are much paler. It lasts in full beauty a very long time, and fills the house with its grateful perfume. It should be grown upon a block in the East Indian house, and subjected to cool and comparatively dry treatment after the pseudobulbs are fully formed. The plant appears to be plentiful in Assam.

D. HILLII.—In general appearance this plant resembles D. speciosum, and as a species is undoubtedly very nearly allied to it. The growths are much taller and not so stout; the leaves thick and leathery, somewhat oblong and very dark green; the racemes long and pendulous; the flowers very numerous and creamy white, the sepals and petals are linear, and the lip oblong. D. Hillii should have pot culture, and be grown in moderate heat. After the stem-like pseudobulbs are formed it should be gradually inured to a greenhouse temperature, and ultimately be removed to the open air for a month or six weeks, to be afterwards taken back to the greenhouse until the flowers begin to push, when a little more heat will be advantageous. It blooms during midwinter, and is a very effective kind. It is a native of Queensland.

D. LINEAREFORME.—This is a curious little Australian species not possessed of much beauty, but its feathery racemes of white flowers are elegant ornaments for ladies' hair, and on this account the plant should be extensively grown by all amateurs. The leaves are about an inch long, very thick and fleshy, flat and furrowed on the upper surface, convex below, and deep green. The racemes are erect, about 4 inches in length; sepals and petals long, linear-acuminate and pure white; lip smaller, pale yellow, dotted with red. It should be grown upon a block in a cool house, and blooms profusely.

D. LINEAREFORME.—Although this plant can be kept from flowering until the end of April or beginning of May, it is more strictly an early spring bloomer. The pseudobulbs are upwards of 2 feet in length, slender, and pendulous; leaves oblong-lanceolate, thin, light green and deciduous. The flowers are large, usually produced in pairs; sepals lanceolate-acuminate, rich bright blue; the petals are much larger than the sepals, and rich purple; lip convolute and incurved, rosy lilac, with a deep violet spot at the base. This very beautiful plant is rather difficult to cultivate, but amply repays the grower for every attention bestowed upon it. The East Indian house is the proper place to keep it in, and it should be grown upon a block of wood, or in a basket suspended from the roof, where it can have abundance of light, but be sheltered from the direct rays of the sun. During the growing season it requires careful attention in watering, and the foliage should be frequently syringed. Native of the East Indies.

D. JENKINII.—An elegant, small, compact-growing species, which should be grown upon a block. The pseudobulbs and leaves are both small, and dark green; the flowers are rather laxly set upon the spikes, ground colour light yellow, shaded

with rich golden yellow. It is a beautiful little plant for depending from the roof of a Wardian case. Native of Northern India.

D. NOBILE.—This superb old plant has been in cultivation since the year 1834, and is still one of the most beautiful Orchids in cultivation even at the present day; it is too well known to need much description. The stems are erect, bearing many oblong, obtuse leaves, and the flowers are produced in great profusion; the sepals are oval, petals much broader, waxy white, suffused with bright rosy pink; the lip is cordate and cucullate, white, with a deep crimson blotch. In addition to this being one of the very handsome kinds, it is also one of the most easily grown; it succeeds well either in a pot or a hanging basket. I prefer it in the former. The soil should be peat and sphagnum; give it good heat, and plenty of water when growing, afterwards remove it to the greenhouse, and keep it dry; when the flowers begin to show, place it in a little warmth, and soon the exquisite blossoms will unfold. No person with even a very small greenhouse should be without this magnificent plant. It is widely distributed throughout India.

D. NOBILE PENDULUM resembles D. nobile in every respect, except that it has pendulous growths, and it is, therefore, admirably adapted for hanging baskets. The flowers are large, and resemble those of D. lituratum in colour. It is very elegant, and, like D. nobile, flowers during midwinter, lasting several weeks in bloom.

D. NOBILE WALLICHIANUM.—Many people consider this a distinct species, but I am inclined to believe it is only a variety of my old favourite, D. nobile; it is stronger in its growth than that plant; the flowers which are produced at the same season are much larger, the lip is longer, and the colour is much darker, being rich rosy crimson, and the large spot at the base of the lip is very intense. The treatment should be the same as that recommended for D. nobile. The flowers of these plants are very useful for bouquet-making, and they last a very long time in water.

D. MONILIFORME (of gardens).—A plant which has had its name called in question so much during the past year or two that I really am at a loss to know how to name it. The plant is in habit somewhat like D. nobile, but more slender, and the treatment of that species will also suit it well. The flowers are bright cherry colour and white, faintly shaded with lilac, and very freely produced, affording a pleasing contrast during winter. Native of Japan.—EXPERTO CREDE.

## CRYSTAL PALACE AUTUMN SHOW.

On opening your Journal of last week I was pleased to see that there is some hope of reuniting the autumn show at the Crystal Palace, and that the florists have taken the matter up. I hope the growers and exhibitors of fruit will not be behind. We sadly want an autumn show of fruit, and the Crystal Palace is a good place at which to hold it; we can scarcely expect the Company to halt exhibitions at a loss, but with the help of gardeners and their employers this might easily be prevented. The Society for the Encouragement of Florists' Flowers would do well to invite exhibitors of fruit to assist them, as a successful exhibition in September is not possible without fruit. I have brought the matter before my employer, who will be willing to subscribe to a fund for the encouragement of fruit. I will subscribe a guinea myself, and if other exhibitors will take the matter up success is certain.—JAMES DOUGLAS, *Lorford Hall, Hford.*

## PANICUM VARIEGATUM, AND ITS CULTURE.

This variegated Grass, brought from New Caledonia, when well grown is one of the most beautiful plants introduced of late, and very useful for the decoration of the stove and conservatory. So quickly does it make a specimen that it is very valuable. I grow mine in three different ways.

As a basket plant it has a charming effect when suspended from the rafters of the stove; drooping quite a yard, it looks like a ray of sunlight. The ground colour of the leaf is a bright green, fully one-half being occupied by pure white stripes, tinged with pink.

I have also planted it out with Ferns and Lycopods on rock-work, where it succeeds remarkably well, and is very effective.

I also grow it as a pyramid plant, and as such it is a gem. The soil I use is fibrous peat, silver sand, and a little loam, well mixed; for drainage I employ broken crocks or charcoal.

I well drain a 5-inch pot, fill it with compost, insert about twelve young plants round the outside of the pot, and when well established I form my pyramids of hazel rods about 20 inches high; I then fill up the space with green moss. I thus obtain beautiful neat pyramids. The plants require to be pegged to the moss, which they very quickly cover. They are always admired when placed here and there about the stove.

It is also most useful for the decoration of the dinner-table. I invariably form my pyramids about 20 inches high, but they could just as easily be grown to the height of 6 feet. They require to be shaded from the midday sun, and to be kept constantly moist with the syringe.—F. P. L.

## ALTERED LEAF-COLORATION OF PELARGONIUM L'ÉLEGANTE.

I HAVE a large conical specimen of *Pelargonium L'Élegante*, the character of which has been gradually changing for the past few weeks, and its foliage has now assumed a deep pink hue, giving the plant a charming appearance. I am anxious to learn the cause of a change so desirable, in order to be able to afford the plant every assistance in developing foliage of a similar character.

A variety of reasons and modes of culture have been advanced from time to time as likely causes of this singular change, and among them I may name dryness at the roots, long rambling unchecked growth, and the cool temperature of autumn. But although in some cases these may have been the true reasons of the peculiarity, it is quite certain they are not so in the present instance; for the plant, though covering a trellis of considerable size, has not been permitted to ramble unchecked, but has been constantly pinched and tied in, and its roots have not been kept at all dry, having been watered freely throughout the winter, while for the past two months an occasional dose of tolerably rich liquid manure has been given.

The only cause of the altered colouring I am able to assign is that the plant is an old one, and having remained undisturbed upwards of a year, and being very much pot-bound, the soil has become impoverished and the system of the plant weakened. Whether I am right or not in coming to this conclusion time will show; but if evidence were needed to prove that a plant must be subjected to some such conditions before its foliage becomes so splendidly suffused with colour, a number of younger plants of the same variety, wintered in the same house, and treated in precisely the same way, with the exception of not having had liquid manure, may be pointed to as failing to exhibit the slightest change whatever from their normal state.—EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

## DESTROYING WEEDS ON WALKS.

THE following receipt for the destruction of moss and weeds on garden walks I have tried for some years, and I can recommend it as inexpensive, effectual, and easily applied. I first took it from one of Messrs. E. G. Henderson's catalogues, and although in my way of applying it I have not attended strictly to the instructions there given, yet I have never known the remedy fail, and I have proved that it effects a great saving of time and labour as compared with the old and tedious operation of hand-weeding. It is simply arsenic and common soda boiled in water: the proper strength is 1 lb. of the former and 2 lbs. of the latter to twelve gallons of water. This quantity is sufficient for a walk 6 feet wide and nearly 30 yards long. The liquid is recommended to be applied as hot as possible; in this way its effect is most rapid, and perhaps it is necessary to so apply it in showery weather, but doing so increases the expenditure of time and labour, besides involving a larger consumption of fuel. I usually apply the liquid in the following way, and then, though not so rapid, it is no less sure in its effects:—

I have a twelve-gallon galvanised iron copper with a broad rim. This is set in a circular iron stand on legs high enough to allow of a fire being made under it; the fire is made on the ground, and kept within bounds by a few bricks piled round it. I boil 14 lbs. of arsenic and 8 lbs. of soda in twelve gallons of water, and when the mixture is diluted to the proper strength there will be forty-eight gallons of it. To do this, and to carry the liquid conveniently to any part of the grounds, I use a large barrel with a wooden tap; it is fixed on wheels, and to every three gallons of the boiling liquid measured from the

copper I add nine gallons of cold water; even then the mixture is not cold.

Between March and May is the best time to put it on the walks; if the weather is fine and the walks dry all the better, for should heavy showers soon follow, much of the poison will be washed away, the little remaining will be much weakened in its effects, and a few weeds may spring up in places before the summer is out, otherwise one dose is enough in the year.

I generally apply the liquid through a moderately coarse-roasted watering pot; it is better that the rose should not be a spreading one, otherwise there is danger of some of the liquid falling on the grass or Box edges, which it will be sure to discolour if not killed; there is no danger or difficulty if the watering pot is held close to the ground, and enough put on to just flow regularly over the surface of the walk. It will then soak in enough to destroy the germinating power of all seeds, and will within twenty-four hours kill all weeds that have made their appearance above the ground. Where the walks are bounded by Box edges it is advisable to lay a narrow ridge of dry earth or sand by the side to prevent the liquid from soaking down to the roots; but with turf edges, if they are above an inch in height, no other precaution is necessary than the careful application of the liquid.

It generally takes one man a little over a fortnight to go over the walks here, but by hand-weeding it would require two for double that time, and most likely a more weeding would be required during the summer. I buy the arsenic by the hundredweight at 3d. per lb., and the soda by the hundredweight at the rate of 2 lbs. for 14d. Perhaps I ought to mention that the watering pot and anything used in connection with the job must not come in contact with the turf; if so, they will leave traces where they have lain.—THOMAS RECORD, *Lillesden.*

## ROYAL HORTICULTURAL SOCIETY.

MAY 4TH.

ON this occasion there was again a very beautiful show, the most striking, the most lovely feature of which was the Roses; but the miscellaneous collections gave the same diversity of form, of height, and of colour, that have distinguished the shows at Kensington this year from those that have gone before. Added to all this, the interest is vastly increased. It would seem that the changes which the Society have made this year in their arrangements are destined to lift up horticultural exhibitions—theirs at least—from that monotony, that sameness, which has characterised them of late years.

Class 1 was for nine Roses in pots, and two collections were shown. Messrs. Paul & Son were first with large plants of Charles Lawson, Anna Alexieff, Madame Willermoz, and Clive Forestier in fine bloom; the others—viz., Marchal Vaillant, President, Camille Bernardin, Vicomte Vigier, and Madame Margottin were also very good. Mr. Turner, of Slough, who was second, had in his collection beautifully bloomed specimens of Vicomte Vigier, Souvenir d'un Ami, Madame Eugene Appert, Alba metibilis, and Madame de St. Joseph.

Class 2 was for three Roses in pots, and for amateurs only. In this Mr. P. Perry, gardener to F. G. Debenham, Esq., Chesham Park, was first, and Mr. James, gardener to W. F. Watson, Esq., Isleworth, second, with plants which would bear no comparison with those in the other classes.

Class 3 was for twelve Roses of 1867, 68, and 69. In this Mr. Turner was first and Messrs. Veitch second, both having finely grown plants in excellent bloom. Prominent in both collections was the splendid rich scarlet Duke of Edinburgh. The others from Mr. Turner were Henri Ledechaux, beautiful bright rose, Madame la Baronne de Rothschild, very fine pale rose; Marie Ducher, fine; Madame Cretien, Madame Alice Dureau, Clotilde Rolland, very fine; Reine du Midi, Adrienne Christophe, Madame Clerf, pale rose with a deep rose centre, fine; Dupuy Jamin, fine, rose purple; and Miss Ingram, beautiful pale rose. Messrs. Veitch, besides Duke of Edinburgh, Miss Ingram, Madame la Baronne de Rothschild, and Reine du Midi, all of which were remarkably fine, had La France, Enfant d'Ameugny, Vicomtesse de Vézins, Madame Groussier, Elie Morel, fine; Mousnier Woolfield, lively rose; and Madame Adèle Huzard. In the miscellaneous class Messrs. Veitch exhibited one of the most splendid collections of 700 Roses ever seen—so excellently grown, and with blooms so numerous, so large, so exquisitely beautiful in colour, and with that great point in a Rose, freshness, they constituted the most striking feature of the Show. Alfred Colomb, Dr. Andry, Senateur Vaisse, General Jacquemont, Beauty of Waltham, Madame Willermoz, Madame la Baronne de Rothschild, Centifolia rosea, Marie Baumann, and Paul Verdier were a few of the most noticeable.

Of cut blooms of Roses shown in Class 10, Messrs. Paul sent six stands, taking the first prize, the second going to Mr. Earley, gardener to Mr. Fryer, Esq., Digswell, and the third to Mr. Osman, gardener to R. Holland, Esq., Stanmore Hall. In Mr. Earley's stand there were remarkably fine blooms of Marchal Niel, President, and Madame Fortada.

Of *Herbaceous Calceolarias*, Mr. James and Messrs. Dobson and Son, each sent finely bloomed lots of six, taking equal first prizes, and Messrs. Dobson & Son had in addition about a score net for competition. Of hardy *Primulas*, two sets of six were shown, and these came from Mr. Ware, of Tottenham, and Mr. Turner. A second prize was awarded to the former.

Among the collections exhibited in the miscellaneous class, Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, had one in which were three magnificent specimens of *Vanda* trees, to which a special certificate was given; and a like award was made for the yellow-flowered *Oncidium sessile*. There were also in this collection nice specimens of the white and yellow *Dendrobium infundibulum*, *Clystis*, *Limnophila*, and the pretty rose and white *A. riles* *Andromeda*. Messrs. Rolleston sent a collection, including most of the plants they exhibited last week at the Regent's Park, and the purplish rose *Saccolabium ampullaceum monimeuse*, which received a special certificate. Messrs. Standish sent a fine basket of *Athyrium Gorgianum pictum*, one of the most beautiful of the coloured-fronded Ferns; *Rhododendrons* in fine bloom, among which Huntsman, purplish-rose, had excellent trusses and very pretty in colour; *Primula cortisoides* major, a very fine variety, *Gonista precox*, a pretty hardy kind with lemon-coloured flowers, and *Acanthopanax variegata*, a Japanese plant with the leaves much variegated with cream colour. Mr. Wilkie, Oak Lodge, Kensington, had a collection of *Heaths*, five specimens of *Tetradlea hirsuta* and the beautiful *Hieris scaberrima*, besides *Tree* and other Ferns, an *Eriostemon*, and other plants.

Mr. W. Paul again exhibited the same kinds of *Primulas* as noticed last week at the Regent's Park, *Tricolor Pelargoniums*, and *Princessa Christian Rose*. From Mr. R. Parker, of Tooting, came a number of baskets of bedding *Pansies*, of which *Cliveden Purple*, *Cliveden Blue*, and *Cliveden Yellow* were most effective. Messrs. E. G. Henderson sent a number of seedling *Mimulus* and *Tricolor Pelargoniums*; *Spiraea japonica variegata*, a very ornamental form with the leaves veined with cream colour; *Ageratum* from *Thunbergia* (form); *Blanchetii*, and *Pansy Golden Beddoe*, a very showy variety for bedding. From Messrs. Veitch came nine bushy-headed *Azaleas*, grown to a single stem and forming masses of bloom. For these a special certificate was given. *Roi Leopold*, *Reine des Roses*, *Comtesse de Flandre*, and *Belle Gantoise* were especially fine.

Mr. Williams, of Holloway, sent a miscellaneous collection, in which was *Arphyllium giganteum* in fine bloom, *Cypripediums*, *Phalæopsis*, and other *Orchids*; *Sarracenia flava*, *Hydras*, *Azaleas*, a fine specimen of *Gleichenia* *splenetica*, *Magnolia Lemoii*, and *Dracæna* *lucida*.

Messrs. Veitch, in addition to their other contributions, had a charming collection of *Orchids*, backed up with *Palms* and *Dracænas*. Of *Oncidium scarceoides* there was a spike 6 feet long; and *Oncidium Marshallianum*, bright yellow and brown, with a fine branching raceme, received a special certificate. A like award was made for a specimen of *Ondotoglossum Phalæopsis*, with a dozen flowers besides buds. In the same collection was the white-flowered *Dendrobium Heyneanum*, the glowing *Masdevallia Veitchii*, *Dendrobium infundibulum* and *D. lasioglossum*, *Brassia Girendiana*, *Arides rubrum*, with an erect spike of lilac flowers, and a fine basket of *Anthurium Scherzerianum*. From Mr. Bragg, of Slough, came two stands of *Pansy Pansies*, named from Mr. Ware, of Hulse Nursery, a large collection of hardy plants in flower, and of others ornamental by their foliage. A special certificate was given to Mr. Woodward, gardener to Mrs. Torr, Garthard Hall, Ewell, for four standard plants of *Dentzia gracilis*, with heads 2 feet in diameter, on 6-foot stems, forming fine masses of bloom.

**FLOREST'S FLOWERS.**—Amongst the *Roses* in pots we must characterise as pre-eminently good Duke of Edinburgh, than which anything more brilliant cannot possibly be imagined, fully confirming my opinion that Mr. G. Paul may be warmly congratulated on having sent out one of the best dark-coloured *Roses* in growth. It appeared in both collections. The others were *Adrienne Christophe*, beautiful copper-coloured *Tea*; *Henri Godolphin*, a flower that has not been before; *Reine des Roses*, a flower that has not been before; *Baronne de Rothschild*, beautiful light pink, the best in its class; *Monsieur Woolfield*, bright pink, very good; *La France*, very bright, but the petals thrown about in rather too angular a manner; *Madame Creton*, a good purplish *Rose*; *Clotilde Rolland*, a very light pink flower.

Among cut blooms from Messrs. Paul & Son there were *Princess Marie*, an old *Tea*-scented, but good for pots; *Mar-chal Niel*, *Marie Rady*, purplish red, good; *Leopold III.*, good; *Paul Verdier*, fine.

Of *Auriculars* there was but a very small display, partially owing to the extreme lateness and coldness of the season. Two same exhibitors who contended, if contention it could be called, were present on this occasion—Mr. Turner, of Slough, and Mr. James. In the class for twelve, Mr. Turner was first with *Omega*, a lovely white-edged flower of great refinement and good properties, its only fault being a little too light eye, still it is a first-rate variety. Exhibitor, Colonel Champneys, Miss Geddings, very like *Lovely Anne*; Chapman's *Sophia*, good in colour; *Stapleford Hero*, General Neill, good green edge; Richard Heady, fine grey; *Galatea*, Lancashire Hero, and Earl of Shatterbury. Mr. James was second in this class with *Emily*, being John Bright (coarse), *Spurber*, Mrs. Smith, General Belvoir, *Alma*, *Bright Phæbus*, too much colour; *Newton Flag*, washy; *Lancashire Hero*,

good. In six, Mr. James was the only exhibitor, his plants were *Superb*, *True Briton*, *Conqueror* of Europe, *Duke of Cambridge*, very small; *Lovely Anne*, too little body colour; and *Alma*. On the whole the *Auriculars* clearly showed the effects of the long protracted winter we have had.

Alpines made a fine show, Mr. Turner being the chief exhibitor, who, besides his collection of twelve, exhibited a large number of fine varieties. *Amy*, *The Clipper*, *Monarch*, a beautiful soft, smooth flower; *Selina*, *Brunette*, *Etna*, very dark, and *Topaz*, were conspicuous.—D., *Doct.*

**FRUIT COMMITTEE.**—G. F. Wilson, Esq., F.R.S. in the chair. Mr. Carmichael, gardener to H.R.H. the Prince of Wales, sent a box of fine fruit of *President Strawberry*, large and beautifully coloured, and a special certificate was awarded to it. Mr. Gray, gardener to E. A. Sanford, Esq., Nymphenburg Court, Wellington, sent two baskets of *Koenig's Seedling Strawberry*, also very well grown. Mr. Hallett, Cossington, Bridgewater, sent a dish of *Uvedale's St. Germain Pears*, a brace of *Cucumbers* called *Hallett's Perfection*, and a large fruit of *Citron*; to the last a special certificate was awarded. Messrs. Rolleston & Sons, of Tooting, sent a good specimen of the true *Telegraph Cucumber*. Mr. Calder, gardener to J. S. Leigh, Esq., Luton Hoe, sent a brace of enormous seedling *Cucumbers*. The longest was 2 feet 8 inches, with a circumference of 9 inches. A special certificate was awarded to them for size and symmetry. Mr. Osman, gardener to R. Holland, Esq., Starnmore Hall, Middlesex, sent two baskets of large *Marooned Broccoli*. Mr. Hallett sent two varieties of self-protecting *Broccoli*, neither of which was considered worthy of a certificate. Messrs. Carter & Co., Holborn, sent three pots of *Ash Champion Kidney Bean*. The Chairman submitted specimens of *Neal's* pyro-silver knives for fruit knives, for use by the Committee to test their merits. These are steel knives coated with silver through the agency of fire, and are said to be less costly than plated, and very little more so than steel knives. Major R. Trevor Clarke exhibited a seedling *Cucumber*, raised from *Sion House* crossed by *Telegraph*.

**FLORAL COMMITTEE.**—Rev. J. Dix in the chair. From Mr. Williams, of Holloway, came *Tillandsia Lindenii*, with beautiful blue flowers having a white eye, and measuring at least 2½ inches in diameter—one of the finest introductions we have had for several years, and all the more valuable because the colour of its flowers is so scarce among stove plants. Moreover, it is said to be of easy culture. It received, of course, a first-class certificate. A like award was made to Mr. Williams for *Cochlostoma Jacobianum*, with large mauve and deep violet flowers, and noble foliage. Mr. Williams also sent *Lycaste cinnam*, with pale yellow flowers; *Agave Verschaffeltii* and its variety *glauca*, recently noticed; *Amayllis carinata*, with flowers of a very fine scarlet, and several other plants.

Mr. R. Veitch, of Exeter, sent *Adiantum Veitchii*, a beautiful Fern, with the pinne semi-circular, and of a coppery hue in the young state; *Anthurium Scherzerianum giganteum*, with the scarlet spathe much larger than in the ordinary form, but rather coarse-looking; *Gouania pumila*, a handsome Palm, which had a first-class certificate; *Messrs. Veitch*, of Chelsea, had first-class certificates for *Araea monasticha*, a dark green-leaved Palm, for *Enteropogon sylvensis* and *Curtinodora rotundifolia*, with light green foliage, that of the latter very beautiful; also for *Dickera nobilis*.

Mr. Parsons, of Brighton, sent his new variety of *Mignonette*—*Reseda odorata eximia*, which has been before noticed, and received for it a first-class certificate. From Mr. Parker, of Tooting, came *Viola lutea* major, a very showy yellow bedding *Pansy*, for which a first-class certificate was given. A similar award was made to *Clematis Lord Londesborough*, which, though not so large as some other varieties, was very beautiful in colour, being purplish red with a rose purple band up each of the segments. A violet mottled with white, called *Viola violeta*, also came from the same exhibitor. Messrs. E. G. Henderson, Wellington Road, St. John's Wood, received a first-class certificate for *Caladium Princess Alexandra*, with leaves rose, veined with green, and much marbled. The same firm exhibited *Azalea Bijou de Ledeborg*, with white-edged leaves. Mr. R. H. Bard, St. John's Wood Terrace, sent *Trifolium repens arenum*, with very pleasing golden foliage, and which will probably be seen again in better condition.

Mr. Williams Paul had a first-class certificate for *Zonal Pelargonium Avalanche*, with white flowers and white-edged leaves, very pretty. Several *Pelargoniums* were shown by Messrs. Downie, Laird & Laing, as *Black Douglas* and *Reine Victoria*, and which well maintained the credit of the firm for the fine varieties of this section they have already sent out; also *Imperial Blue Bedding Pansy*, often shown before. Mr. Turner, of Slough, sent several fine baskets of *Tricolor Pelargoniums*, including Mrs. Turner.

Mr. Green, gardener to W. Wilson Saunders, Esq., had a first-class certificate for *Pothos ventricosa*, a very interesting plant, with noble dark green leaves, peculiar also in their fleshy petioles, and the inflorescence consisting of a white spadix and spathe, the latter crimson at the base. A very remarkable Iris from Mr. Ware, of Tottenham, also received a first-class certificate. To what species it belonged no one could say.

Messrs. Carter & Co. sent nice specimens of Ivy-leaved *Pelargoniums Elegans* and Dr. Schomburgk; Messrs. Rolleston *Araucarias*

caledoniensis and Cunninghamii glauca; and Mr. Cox, Redleaf, cut blooms of Rhododendron Aucklandi.

First-class certificates were also awarded to Mr. Turner, for *Arriola Omega*, and for *Alpine Arriola*, *Monarch*, *Scima*, and *Black Prince*; and second-class for *Clipper* and *Etna*. Special certificates were given to Mr. W. Paul, and to Messrs. E. G. Henderson, for groups of plants, and to Messrs. Veitch for a group of *Azaleas*.

GENERAL MEETING.—W. Wilson Saunders, Esq., F.R.S., in the chair. After the election of seventeen new Fellows and the announcement of the awards, the Rev. M. J. Berkeley said he had learnt that *Trilepis androsa* was going through the country under the name of *Trilepis allinea*, on his authority; the fact being, that at one of the meetings a plant of it had been sent under the wrong name of *Leucocoryne allinea*. The *Peas* in the glass wall at Chiswick, noticed at the last meeting, were next referred to as having set a fine crop of fruit, and then attention was directed to a specimen illustrating the result obtained in the fifth generation from the seed of the wild Cabbage collected at Aberystwyth, and it was remarked that hens would not touch it. The *Arriolas* and several of the plants exhibited were then briefly noticed, especially *A. Toxicophila* (speciosa), which was said to be poisonous. Occasion was taken to remark that the *Oleander* was also poisonous, and that several French soldiers had been poisoned by using the wood for skewers. A little sprig of a *Sorbus* from Major Trevor Clarke was next noticed as producing seed, though there was not a single male plant in the country. This was ascribed to the terminal flowers being imperfect, and these alone.

Major Trevor Clarke said that he had placed in a house what were commonly called female *Hanthos* Strawberries along with Keen's Seedling, gathered seed, and found the whole of the crop from the plants raised were the *Hanthos*; and he inferred that the imperfect anthers, apparently inert, were sufficient to effect fertilisation.

The Chairman, after pointing out the great advantages of *Palus* for decorative purposes till two or three years old, noticed the *Alce*, which Mr. Berkeley had pointed out, as being probably a variety of *amniata*, and said no *Lachnalia* would produce a finer effect than it. He then urged the claims of succulents on the attention of cultivators, and instanced some of them as the most beautiful of plants. The ravages of birds, especially skylarks, on the *Kales*, and more particularly *Broccoli*, were next noticed, and the Chairman said the mischief seemed to him to be often done more for amusement than anything else.

Mr. Berkeley having pointed out leaves of *Peaches* which had been perforated, owing, he believed, to cold, and of water falling upon them, the Chairman said the same result was often observed, most frequently—by the punctures of insects, and the punctured parts afterwards falling out.

## ENTOMOLOGICAL SOCIETY'S MEETING.

The April meeting was held on the 4th of that month, the President, A. R. Wallace, Esq., being in the chair. Letters from Professors Schödtke, of Copenhagen, and Von Siebold, of Munich, returning thanks for their election as honorary members, were read. The Secretary exhibited a specimen of a Mole Cricket, taken by Mr. A. P. Falconer in Nubia on his return from Philæ to Alexandria. It had been identified as *Grylloblatta Coptica* of De Haan and Scudder. It scarcely, however, differed in appearance from the English species.

Mr. J. Jenner Weir exhibited, on behalf of a wharfinger at whose wharf on the banks of the river below London Bridge grain was stored, a quantity of Wheat and American Maize infested to a very large degree with weevils and other grain feeding insects. Of a cargo of 74 tons of Spanish Wheat not less than 10 cent. of weevils and their debris had been screened out; and from 145 tons of American Maize warehoused in August, 1868, as much as 35 cent. of weevils had been screened out. The loaves which had chiefly indicated this injury were *Calandra brevis* (which differs from the common *C. granaria* in having red spots on the wing covers), with which well-associated numbers of *Stenus ferrugineus*, a small beetle nearly allied to the mealworm, so often found in ships' biscuits (*Tenebrio molitor*), as well as a small *Cneopus*, which is probably a parasite on the *Calandra*. Independent of the great loss thus caused to the grain, an important legal question was likely to arise as to the party on whom the loss would ultimately fall, as the importer claimed damages from the wharfinger for the loss, whilst the latter claimed damages from the former for sending him grain already infested with the weevil, and thus introducing so obnoxious an insect into his stores. A long discussion took place on the habits of the insect and on the remedies which had hitherto been proposed, in the course of which the wharfinger, who was present, stated that some years ago a rotary machine, which had been strongly recommended in France, had been erected by his firm, but it had completely failed; and Professor Westwood described the larva of the common *Calandra granaria*, hitherto undescribed.

Mr. A. Müller read a note from an American correspondent corroborating his statement as to the scent emitted by certain species of Gall Flies. Mr. H. Vaughan exhibited a number of specimens of *Dianthaea carophylla* bred near Croydon, varying considerably in their colours and markings. Mr. F. Smith exhibited some interesting species of *Vespa* recently received from Mr. Crispen, captured on the Rocky Mountains of America; and Mr. J. J. Weir some specimens

of *Frigitarias* from Russia, with reference to the specific distinction of *Argynnis Adippe* and *Niobe*. Mr. Crotch communicated a note on the British species of *Dasys*, and a notice was read of the spectrum analysis of the light of the Firefly in New England.

## BEDDING PELARGONIUMS.

I THINK no one can judge of a bedding Pelargonium till it has been planted out. The Rev. C. P. Peach's opinion of my Bayard Pelargonium has been formed from plants growing in pots only, and which have only been in his possession a few weeks; and I think those who proved it last year will certainly not concur with the opinion expressed by him (see page 301 of last week's Journal). It received a first-class certificate from the Royal Horticultural Society, and several letters which appeared in "our Journal" spoke last season in the highest terms of it. It has now been sent out two seasons, is known to many, and though the pecuniary interest is lost, still a raiser is jealous of the honour of his pets. I know by experience to raise thousands of seedlings is not very profitable, but there is a fascination about it which few can give up; the honour in prospect allures, if the chance of profit be small. Surely our pets ought to be fairly tried before being described. I shall be much surprised if Mr. Peach do not put Bayard at the top of his list when he has proved it. Let those say who have done so.—J. R. PEARSON.

[Since the above was in type we have received the following from Mr. Peach.]

In reading over my remarks on Bedding Pelargoniums in the number of April 28th, I find I have omitted to name *Rebecca*, which is one of the very best both as a pot plant and a bedder, and is worth a place in every garden. I have also omitted to state that I have not yet tried Bayard as a bedder, and have only given my opinion of it as I have seen it while propagating it. I have heard it spoken of so highly by those whose opinions I can readily follow, that I advise all who can to give it a trial, as of course, though one can form a sort of general estimate of a Pelargonium when growing it on for bedding-out, yet it is impossible to give a decided opinion till it has been tried for bedding purposes for two or three seasons.—C. P. PEACH.

## A VISIT TO THE LITTLETON AND PORT VICTORIA HORTICULTURAL SOCIETY'S SHOW.

JANUARY 27TH, 1870.

THIS Show was a great success as respects the articles exhibited, although the attendance was not what the Committee had a right to expect. The Colonists' Hall, where the Show was held, was tastefully decorated with flags, evergreens, and *Toi-toi* Grass (*Calamagrostis canadensis*).

I will first give you a brief description of Lyttelton or Port Victoria. Lyttelton is built on the crater of an extinct volcano, on a series of spurs and gullies, the streets stretching up the steep hillsides to the height of 200 feet above the sea, to which there is a nunnery plain from every part of the town. Some of the houses are built on stone arches expanding over the gullies. Altogether it is a very romantic-looking place, sloping down quite to the margin of the sea. Christchurch, on the other hand, is an example of a totally different combination of circumstances; it lies on a plain of very large extent. We, in Christchurch, have plenty of water from Artesian wells; but Lyttelton, unfortunately, has no water supply except out of a few deep wells near the beach. Many very many plants—from tropical countries left behind by shipping, have become acclimated in Lyttelton and flourish.

I will generalise my task about the Exhibition as much as possible. Exhibitors' names will be of no use for "our Journal." The display of fruits and vegetables was admirable. The competition in Potatoes was very keen, but the season was too early for stone fruit. White Muscadine and other Grapes were very fine and of excellent flavour. Several collections of small fruits were especially deserving of commendation, both for their variety and excellence of condition. The Cabbages shown were very fine. A splendid basket of vegetables, ten pounds, attracted general attention, and gained a first prize. At the upper end of the Hall was exhibited a monster chignon, with the "waterfall" of the period, constructed of Flax, our *Phloxium*, dressed at one of our newly-established Flax-works. This caused much merriment. I was glad to notice that we are progressing in the manufacture of pottery, as shown by some creditably made flower-pots exhibited. We have usually depended on Sydney for a supply until very lately. Ripe Figs were very well represented. Pot plants were not very numerous, only one collection being shown, and these were from a Christchurch nurseryman, but they were good and well-grown for a colony, though not rare. Probably some English judges might laugh at them, though window plants come in for a small share of patronage.

Cut flowers were in great abundance. A *Gloxinia* in full flower was especially remarkable from the fact that it had not been grown in soil in the usual way, but in a bunch of damp moss in a suspended position. A small collection of Zonal *Paragloniums*, seedlings, I think, attracted much notice. The display of four collections of cut blooms of *Gladioli*, choice sorts, would not have disgraced the Crystal Palace Show. They added very much to the attractiveness of the Exhibition. There was also a good collection of Fancy *Dahlias* well grown. The Queen's Lily likewise added to the display very much. There were two collections of handsome cut Roses—very handsome, I say, considering the difficulty in blooming them here at midsummer, when the sun is so hot as to scorch the petals; the varieties were chiefly *Noisettes* and *Hybrid Perpetuals*.

This is all I can recollect about the subjects exhibited. The officers of the Society were most energetic throughout the day.

We gardeners, of course, had to take a little refreshment, being from home on this occasion; and I have to inform the author of "Greater Britain" that we usually say to each other very politely in company in a tavern, when we are obliged to meet there occasionally, "What are you going to have?" and not "What'll you shoot?" Gardeners here do not tolerate such language as "shoot" and "stand." I submit this to show you that there are exceptions amongst us, and probably the young baronet may become aware of the fact now.

A very severe hailstorm, which was preceded and followed by thunder and lightning, broke over Christchurch at about one o'clock in the afternoon of January 29th. The storm lasted for five minutes. The hailstones were unusually large, many of them being larger than rifle bullets. The barometer fell the day before nearly  $1\frac{1}{2}$  inch, the hail continuing up to nine o'clock in the evening, when the mercury began to rise slowly but steadily. In some places a drift of hail 20 inches deep could be seen. The storm was succeeded by heavy rain. I will relate the damage done by it in my own garden and just round where I live. *Verbena* and other bedding-out plants all spoiled of their beauty and destroyed; petals of *Paragloniums* and flowers of *Ligustrum japonicum* all pelted off; the same with the *Tritoma* flowers and *Phlox paniculata*; and the petals of *Dahlias* all destroyed. The hailstones made holes through *Cabbage* leaves and the leaves of *Scarlet Runners*, threshed ripe Peas as clearly as if with a flail, and bruised my Apples. My garden looked quite desolate, everything being so knocked about. This was the most destructive hailstorm ever known here, and all the damage was done in five minutes.—WILLIAM SWALE, *Attercliffe Botanic Garden, Christchurch, Canterbury, New Zealand.*

## THE CHEMISTRY OF MANURES.

I AM much obliged to Mr. Pearson for the way in which he has again called the attention of your readers to the subject of the chemical value of nitrogen in manure. He has stated my view of the subject very concisely, and I am glad he thoroughly understands that it is not my wish to prove myself right and other persons wrong, but that I think the whole subject requires fresh ventilation, and that I do not think sufficient evidence has been yet adduced to prove, that though nitrogen in the atmosphere is the most inert and passive of all elements, yet when in combination with other substances it should become the most active and important ingredient, so that the value of manures should be made to depend upon it.

I will briefly reply to the various objections raised by Mr. Pearson. First, I quite agree with him that the value of an ingredient as a manure is not always in direct proportion to the quantity of that ingredient found in the growing plant. There are certain elements and substances necessary to a plant which are found in so small quantities in some soils, and then very often in so insoluble a form, that the plant has great difficulty to obtain what it requires; and a knowledge of the chemical nature of a soil is very valuable to enable a gardener or agriculturist to supply to the soil as a manure any element that is deficient. Mr. Pearson quotes a case in point. Phosphoric acid is generally a very important ingredient in manures, because it is found in very small quantities in most soils, and yet is necessary to the growth of all the more highly organised plants, though only in small quantities. For instance, it bears a very small relative proportion to the carbon or oxygen in growing crops. Where, then, as in Mr. Pearson's case, the land is rich in phosphates, there is no necessity to add more phosphorus to the soil, and phosphatic manures would be of little advantage. Clearly in the same way, as nitrogen is found in only very small quantities in plants, and yet is very abundant in the air they breathe, it would be of no use to add more nitrogen if they can assimilate what they require from the atmosphere.

The whole question at issue, therefore, hinges upon this point, and it is upon this point we require more sufficient evidence. At present the line of argument is this: Nitrogenous manures are found of great value and efficacy, and therefore it must necessarily arise from plants not being able to obtain their nitrogen from the air. This is arguing in a circle. Liebig begins by asserting, "We have not the slightest reason for supposing that plants are capable of assimilating nitrogen from the air," and then upon this broad assertion lays down a further general rule—that the value of a manure is in proportion to, and on account of, the nitrogen it contains.

The point I wish to have cleared up is this: Granting that a manure is valuable in proportion to the nitrogen it contains, does it necessarily follow that it is valuable only, or chiefly, on account of this nitrogen?

Mr. Pearson, in summing up for me what I endeavored to bring forward in my former paper on the subject, did not include the statement that out of five substances present in the air—oxygen, nitrogen, carbonic acid, aqueous vapour, and ammonia—it is universally admitted that plants are capable of assimilating four; and the only argument as yet adduced against their being able to assimilate the fifth—nitrogen, is, that as it is present in such large proportions (four-fifths of the whole atmosphere), it would be found in larger quantities in plants if they were capable of absorbing it, and also because it is so inert and has such weak affinities for other elements; consequently, it cannot be taken up by plants except it has first entered into combination with other elements.

No doubt nitrogen when combined with hydrogen to form ammonia is more soluble than it was before, and when it is still found in the form of ammonia in plants it will be more easy for those plants to assimilate it in a combined than an uncombined form; but then we must bear in mind one law of chemistry—that an element will not leave one for which it has affinity for another element for which it has less affinity. If, therefore nitrogen cannot be assimilated by a plant because it has only weak or no affinity for the elements contained in the growing plant, it will not any more leave the hydrogen in ammonia or oxygen in nitric acid (elements for which it has affinities), and enter into combination with the growing plant, than it would in its previous uncombined state. This is one great reason why I think that nitrogenous manures are valuable on account of their solubility, and because they act as solvents for other elements necessary to the welfare of the plant and are easily decomposed, rather than on account of their supplying nitrogen. It is not as if nitrogen were in a solid or insoluble form in the air, but as it is in a gaseous form it is capable of entering into the pores of the leaves of plants, and like other gases, is capable of expansion, contraction, and absorption. Neither have we as yet any proof, as I stated in my last, that nitrogen is capable, like oxygen, of assuming two forms, or that it is in any way different when leaving its combination with another element from what it was on its entering into combination with it.

As to Mr. Pearson's second objection—that nitrogen is necessary to the formation of muscle, I dare say he will not be surprised that I equally doubt the value of nitrogen in animal food. Lewes, in his "Physiology of Common Life," adduces, I think, a great deal of evidence which helps to prove that the value of animal food does not depend upon the quantity of nitrogen it contains. I have not his book by me, and it is a long time since I read it; I cannot, consequently, quote the arguments he uses. In reading, however, Wallace's "Malay Archipelago," I was struck with the fact that although the inhabitants of the islands of Java, Sumatra, Borneo, &c., lived almost entirely on rice, or else on rice, both of which are very deficient in nitrogen, that still as a race, though indolent, they were not deficient in muscular power. But with regard to animal food as food for man, the truth is, that the value of a food is in almost exact proportion to its digestibility. Meat, and all food that is rich in nitrogen, is more easily digested than fat or carbonaceous food. Moreover, the saline ingredients of animal food are necessary to the support of human life in health; and though these saline ingredients can be obtained from other sources, yet they are more easily obtained from animal food. It would seem that in the economy of nature the office of ruminant animals is to prepare food for man, the higher order of the creation. Sheep and oxen, for instance, have to prepare food for man from the vegetable world. The flesh and blood of these animals are closely allied to those of man, and the more nearly the food we eat approaches in its chemical composition the flesh, muscle, &c., of which our body is built up, the more easily is that food digested and assimilated. The muscles of a man in constant exercise require to be constantly renewed. There is no muscular exertion or force used without the waste of muscular tissue. Just as there can be no motion without heat, and no heat without motion, so there can be no muscular force used without waste. This waste has to be supplied from food; and nitrogenous food, which is more easily digestible, as it is less acid, is, therefore, the real means by which this waste of tissue can be made up. It is only the more highly organised forms of animal and vegetable life that contain this nitrogen; and as it is the peculiar property of all highly organised food that contains nitrogen to be easily decomposed, it is only fair to argue that it is this property which makes this kind of food so valuable, and not merely the nitrogen. I purposely avoided, however, in my former paper on this subject touching on the question of the value of nitrogen as food for man, because it opened up so wide a question.

All manures that help to stimulate the growth of a plant will darken the green of their foliage, but those manures which are rich in ammonia and carbon will do so more than nitrate of soda or nitrate of potash. Sulphate of soda will, I believe, produce the same effect as nitrate of soda, but is not so soluble, and consequently does not produce its effects so rapidly. All manures containing soda are valuable, not only as supplying soda to the plant, but because they act as solvents to the silicon which forms so important an ingredient in the ash of all grain-producing crops, but which is the least soluble of all the elements contained in the growing crops. Mr. Pearson thinks that all well-cultivated soils contain sufficient carbon, but as carbon constitutes the weight of a plant, and many forms of carbon are very insoluble, charcoal and peat for instance, any manure that helps a plant to assimilate the carbon more rapidly, will hasten the

growth of a crop in that way; and though there may be a sufficiency of carbon in the soil and in the air, yet as in our climate there is only a certain time for plants to make their growth in, anything which helps to hasten that growth must act beneficially as a manure. Soot, for instance, has a powerful influence in increasing the growth and greenness of many crops. It contains ammonia, and, consequently, by many the value of the soot is supposed to be in the nitrogen it contains; but it contains many highly soluble forms of carbon as well, and it is only fair to consider that these substances may be the really and efficacious principle of the manure, as it is only in a small proportion of the soot that the ammonia is found. Most fungi are particularly rich in nitrogen, and the mould which is found at the top of solutions of sugar, vinegar, &c., must obtain its nitrogen directly from the air. Like Mr. Pearson, I am unfortunately no professor of chemistry, but I wish some one, who has both patience and experience enough to do so, would institute a series of experiments to test the matter more accurately.—C. P. PEACH.

I THINK that Mr. Peach is exhibiting much misplaced ingenuity, and you are allowing much space to be occupied in raising a doubt where no logical doubt exists. All cultivators of the soil, and all analytical chemists, agree that manures are powerful as fertilisers in proportion to the nitrogen they contain. No reasoning can surmount this fact. That it is a fact is thus tersely shown by Mr. Nesbit.

The following table contains analyses of various manures, made by Bonsingault, and other well-known chemists, and also an analysis of an ordinary sample of Peruvian guano.

	Farmyard dung.	Horse dung.	Cow dung.	Pig dung.	Mixed liquid and solid excrement of man.	Peruvian Guano.
Nitrogen (equal to)	0.41	0.65	0.36	0.61	0.94	13.88
Ammonia .....	0.43	0.78	0.43	0.74	1.14	16.85

"Bonsingault, Payen, and many others of our leading practical agricultural chemists, have come to the conclusion that the value of different manures varies nearly in proportion to the amount of nitrogen they contain. There may be cases to which this rule is not exactly applicable; but in many natural manures an increase of nitrogen is accompanied by an increase in the phosphate of lime, and every other valuable manuring element. In the above table, for instance, the 13.88 of nitrogen in the guano is accompanied by 30.40 parts of inorganic matter, of which 23.60 parts (or more than two-thirds) are phosphate of lime.

"If we take the per-centage of nitrogen, then, as a correct indication of manuring value, we shall find that one ton of ordinary Peruvian guano is equal to—  
 23½ tons of farmyard dung,  
 21 tons of horse dung,  
 38½ tons of cow dung,  
 22½ tons of pig dung, and  
 14½ tons of mixed human excrements."

No one ever argued that nitrogen is the only valuable constituent of the manure containing it. To suppose that anyone ever did so argue, is to raise a ghost for the mere purpose of laying it.—F. H. S.

SEVERE FROST.—The thermometer yesterday morning at Chiswick registered 20° Fahr., or 12° of frost. Some damage is done to the Apple blossom, many of the stigmas being quite destroyed, although there is still the appearance of a crop being preserved. Gooseberries and Currants have suffered more severely, and, doubtless, had the frost been accompanied with wet and strong wind, the damage would have been much more serious.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

Let those who would have first-rate *Asparagus* see that plenty of manure or half-rotten vegetable matter is dug into the alleys forthwith. Ground from which Broccoli and other Winter Greens have been cleared should be manured, and trenched or dug as may be requisite for the succeeding crop. If it is intended for *Celery*, the trenches should be cleared out at once, so as to be able to plant a crop of Lettuce or Spinach between the trenches; or trenches 3 feet apart and 18 inches deep by the same width may be thrown out, and into the bottom dig some well-decomposed manure; this will bring the bottom of the trench to within 6 or 8 inches of the surface. The dung and soil should be well mixed before putting out the plants. To grow *Celery* of an extra size, a wider space between the rows is requisite, but the above will be sufficient for moderate-sized heads. Well harden-off the plants before transferring them to the trenches. Prepare *Ridge Cucumbers* and *Vegetable Marrows* for planting out, also *Tomatoes*. Weed all *Carrot* and *Onion* beds as soon as the weeds can be taken hold of. Those who are short of hands will find this the most economical mode. Stir the ground between the rows of early *Potatoes*. Keep down

blossom-shoots from both *Rhubarb* and *Sea-kale*; these exhaust the plants much. *Sea-kale* should now have the superfluous shoots thinned away; about four or five to each stool are quite sufficient.

### FRUIT GARDEN.

The disbudding of Apricots, Peaches, &c., should be followed up at intervals, that no unnecessary check may be given to the trees by the removal of a large number of buds and shoots at one time. With young and vigorous trees, three or four weeks may elapse before the final thinning-out, which in that case may be done at five or six times, and will prevent the mischief pointed out above, as well as better equalise the growth of the year's wood. This is greatly preferable to the old practice of allowing the shoots to remain upon the trees till midsummer, and then cutting them back to two or three eyes. In cold exposed situations, instead of entirely removing each useless shoot, pinch them back to one or two eyes; these will form short spurs during the summer, and prove useful in contributing towards next season's crop, as the flowers produced on the spurs generally set better than on the young wood usually left. Various kinds of apicides will now make their appearance, and should be kept in check by syringing the infested trees with weak tobacco water; it is advisable to mix the above with common soap, and to add flowers of sulphur. The sun ensure the mixture to adhere to the young foliage and shoots, and the sulphur, being added, will be found a great preventive of the attacks of red spider.

### FLOWER GARDEN.

Except in favoured localities it will be unsafe to commence planting out the bedding stock until we experience a decided change of weather. Meantime, let the plants be properly hardened-off and arranged, so that when planting out is commenced it can be done expeditiously. Also decide upon what is to occupy each bed, and have everything in readiness. Push forward late-propagated stock, and endeavour to keep the whole of the plants healthy and growing slowly in their pots. It is a common and very bad practice to allow bedding stock to remain in small pots exposed to the sun and wind, and very scantily supplied with water, until they are nearly dried up, and such plants are considered to be hardened. They should be exposed to the weather as freely as circumstances will admit, but never to such an extent as to brown the foliage and dry up the tissues. Endeavour to have moving and other work in a forward state, so as to be able, when bedding-out can be safely commenced, to command sufficient strength to properly care for the plants in the way of watering, protecting, &c., as may be necessary. See that all *Roses* budding have due attention. Disbudding, stopping, &c., are as necessary for them as for fruit trees. Watch the buds inserted last autumn. Rub off the stock-buds from time to time, and let all *Roses*, whether standards or dwarfs, have the ground about them well top-dressed if not previously done. The *Moss* and *Provence* *Roses* intended for forcing next winter should have a rich mulching, fairly covering the pots. As *Crocuses* and other bulbs will now be on the wane, patches of biennials which have stood the winter may be planted close beside them. In the order to prolong the season of those beautiful flowers—the *Anticulis*, the pots should be removed from the frames to a stage having a north or north-east aspect, which may be covered with an awning of calico. As the *ips* will be fully exposed. Thoroughly wedge the *Ranunculus* beds, keeping the surface soil as firm as possible.

### GREENHOUSE AND CONSERVATORY.

Where any considerable number of plants is grown, there can be nothing like a set time for repotting them, as the period at which any particular class of plants are desired to be in bloom, and the purposes for which they are intended, must be kept in view. Although a slight shade is necessary when forenoon of bright warm days, it must be given sparingly when the weather proves unsettled, for without abundance of light the flowers never colour properly, and they soon fade if kept in the shady position. Air should be freely admitted when the weather will permit. Where it can be accomplished, watering should be done in the morning in order to have the superfluous moisture dried-up before evening, so as to avoid night damps. The New Holland twiners, when close flowering, should have their shoots well trimmed before growth commences, thinning the main branches where necessary by cutting out weakly ones, always having an eye to secure plenty of young wood towards the bottom. If the plants are at all infested with scale, they will be most conveniently cleaned, and where necessary the

plant washed, immediately after pruning, so as to have all clean before the plants start into growth. *Centradenias* now exhausted with flowering should be shaken out of their pots and repotted. Fibrous loam and fibrous heath soil, with charcoal and coarse sand, make an excellent compost for them. Make cuttings of them as soon as eatable young wood can be obtained. See that all tender annuals have timely attention in regard to shifting, pricking out, liquid manure, &c.

## STOVE.

It is most likely that many stove and softwooded plants will now require a shift to grow them on. Plants intended for blooming next autumn and winter, and which have been mostly propagated this spring, should now be potted off; or pinch back any straggling shoots to form them into compact plants, and after keeping them close for a week or two to encourage them to make fresh roots, gradually allow them more air and light until they will bear a free exposure to both. As stove plants advance, allow them plenty of room, particularly plants of which the foliage constitutes an important feature. The syringe must be in constant use to keep down insects, assisted by fumigation where thrips are likely to establish themselves. The white and brown scale are best kept under by carefully hand-washing the infected plants with a strong lather of brown soap and water. Soft brushes or pieces of sponge should only be used for this purpose that no injury may be done to the leaves. Achimenes should now be placed where more air can be given; stake them out neatly as the shoots advance. Gloxinias, like the above, require a partially shaded situation and moist heat. Gesneras may be treated in the same way, with the addition of more light. *Amaryllis*, &c., should be removed to the conservatory or show-house for blooming. Mark any very striking varieties for seeding. After blooming, plunge them in a little bottom heat in a frame near the glass, to perfect their growth.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

On the evening of the 29th we had a refreshing rain, not enough to make an impression on ponds or tanks, but quite sufficient to moisten the surface, and, with the accompanying dulness, to enable all plants in the open air to absorb moisture, and thus distend their tissues. The parching sun and cold nights affected many plants, where the roots, from being in a cold medium, could not meet the rapid evaporation from the foliage caused by the sun. This was less observable under glass, but even there sprinkling the floors, paths, and stages, relieved the plants very much, and acted only less effectually than a slight shade would have done. Out of doors a slight sprinkling overhead, or a little shade, would do wonders. The worst of shading in, on the whole, our shady-enough climate is, that though it is no difficult matter to put on, and very likely at the right time, it is so apt to remain on too long, and then it is sure to weaken the plants which are shaded. Many would be better if never shaded at all, if placed far enough from the glass, so that the rays of the sun should be diffused before reaching them. We have thus treated Melons and Cucumbers, and even tender cuttings that were never shaded, but then if the weather was very dull, we thought they suffered slightly from the diffusion of the direct light. Under ordinary circumstances, shading is most needed under glass when a very bright day succeeds several dull cloudy days. The roots cannot then meet the sudden demand on them, and a slight shading for an hour or two, where a sprinkling from the syringe over walls and other surfaces would not do, would be a great relief, but then the shading should be removed as soon as the sun has lost its power. In many cases the shading is left on for hours after the sun has sent none but oblique rays which the plants would have enjoyed. It is well to remember that every hour of needless shading tends to weaken, not to strengthen, a plant. One of our best gardeners lately told us he nearly lost his Cucumbers in a house, because in a scorching day there was such a meeting of fire heat and sun heat, such a free admission of air, instead of damping the floor and paths, and giving a little shading for a few hours. The abuse of the shading would be putting it on—say by 11 a.m., and allowing it to remain far on in the afternoon, even if the sun continued to shine. It would be still more injurious if clouds began to appear by one or two o'clock, as leaving shading on then would render the plants unable to withstand any bright direct sunlight afterwards.

*Celery*.—We took up that in our last beds with balls, and placed it thickly in a shady place, watering it, and earthing-up to the top with fine dry soil; this will come in a little longer for table, and longer for soups, &c., and sets the ground at liberty for Onions and Peas. The rain has given a good start to the Cabbages, which are hearting well, but would have done all the better could we have given them sacking of sewage before the rain. That is the time to apply all such watering with the greatest effect. Thus, it is even later to water out of doors in a dull cloudy day, than in a bright one. We have watered very little out of doors as yet, partly from scarcity of water, but chiefly from the coldness of the ground.

*Onions* have come up well, but, as alluded to above, we shall sow a few more of James's Keeping, which will keep all the longer when not sown too early. But for the rain these would have been sown on the 29th and 30th, but we hope to do so in the first days of May.

*Onions for Pickling*.—We have always some trouble with these, as our ground is rather strong to have them small and well formed. We have pitched on a poor bit of ground which was used as a seed bed for the Cabbage and Broccoli tribe last season, and had a good crop left all winter and spring. After clearing all off we shall merely point it over slightly, sow, put down, and give a sprinkling of rich compost on the surface. By such means we often produce well-shaped little bulbs of the Silver-skinned Onion, but we do not always succeed to our own satisfaction, as even in such an exhausted spot, they are apt to grow too large before they are fully ripe. There is plenty of light poor land where pickling Onions cost no trouble, and where there are too many small Onions, but in strong rich soil it is sometimes difficult to produce them, and the above is the most successful mode we have met with.

*Salting Asparagus and Sea-kale*.—We gave these a sprinkling about the 10th of April when the shoots began to appear, keeping it between the rows, so as not to injure the heads or shoots, and now after the rain we shall give another sprinkling, as it helps the plants and kills the little weeds, if any make their appearance.

*Herb Beds*.—We shall have to make up these and to sow such annuals as Chervil, Sweet Basil, Sweet Marjoram, &c., under glass. In the open air such a common herb as Mint wants looking to. With us, if it remain in the same place two years, we generally lose sight of it altogether. The hardy roots disappear with us, and therefore, to be safe, we have to plant some of it every year. Perhaps the best time to do so is when the shoots are a couple of inches in height with a bit of root attached. These, planted 6 inches apart, will make a dense bed of nice green Mint before it is needed every day for Peas. Is the necessity for Mint as an adjunct to Peas a natural or an acquired taste? With the earlier common Peas, Mint certainly improves them. In the case of some of the best, as Laxton's, McLean's, Veitch's Perfection, Ne Plus Ultra, &c., we sometimes think that the Mint is no improver, but rather the reverse. For the gardener to be without it, however, would be almost as bad as being without Parsley. In some places it is becoming the fashion to use mint sauce freely in winter long before lamb comes generally into season.

On the 22nd of April sowed the main supply of *Kales*, *Broccoli*, and *Brussels Sprouts* for next winter. We were in a little hurry, as we knew the ground was so cool. We have a few a little more forward. We pricked-out lots of Cauliflowers, which will come in as our fourth succession—the third after those under hand-lights, which are now looking all right. Where ground is scarce a regular supply must mainly consist in not having too much at one time. We have several times alluded to the seeming inconsistency of setting such value on an acre or two of ground in the immediate neighbourhood will bring in no more than from 25s. to 30s. per acre to the proprietor. Not only a more abundant supply could easily be obtained from more ground, but the vegetables would be finer and better flavoured from having more room than it is possible for them to be in little space, and when so many things must be grown among other crops.

*Cucumbers*.—Thinned-out the plants and top-dressed them, as they have borne rather too much, but the top-dressing will renew them again. Danked up with litter those in frames, as Lilliberto they have not wanted such attention. Finding that some fruit and a few leaves were nibbled by woodlice, we placed some dry hay close to the frame, and gently moving it, scalded the intruders with water near the boiling point. A small pot, with a piece of boiled Potato, and dry hay or moss above it,

laid on its side, is also a good trap for them. In all old gardens these intruders are sure to abound. A young gardener was boasting he never saw such a thing about his place. Was it because he did not look for them? There was no lack of the traces they had left behind them. A toad with his bright eyes will help to keep them down until he become fat and lazy. When a toad is kept in a frame, he will be thankful, and work all the better, if a small saucer of water is placed for his use in a corner.

#### FRUIT GARDEN.

Hood the ground amongst the Strawberries once more; it is such a nuisance to have weeds at fruit-gathering time, and the necessity of pulling up weeds and taking them away is always a waste of time and labour. With the free and easy use of the Dutch hoe, the rake, with its horrid teeth, need scarcely appear in a garden.

*Strawberries in Pots.*—We kept up successions of these. Plenty of water was needed in the bright weather. It is hardly possible to keep away all traces of red spider when the plants are fully exposed to the sun, and to have fair-flavoured fruit that was essential. Hence, though the Strawberries in forcing-houses would often more than pay the forcing, still it is undesirable that they should be there at all if it can be avoided, and then, when the plants are shaded by Vines, &c., the flavour will be inferior, let the gardener be as careful as he may in watering and air-giving. To have a Strawberry in perfection, plant and fruit should be fully exposed to light. Of course, there may be some trifling exceptions, such as have been alluded to, in sudden changes of weather, but in general everything like shade is to be avoided. Though not one in twenty of us can command a regular Strawberry house, that is no reason why we should not insist on its importance. Such a house would never be without its use. When not wanted for Strawberries it would be just as useful for other dwarf stony plants. Besides, when there was nothing to shade, there would not be the necessity of having the Strawberry plants so near the glass. With heat and air at command, and all the light possible, the plants would set their bloom as well at 18 and 24 inches from the glass, as they would at 9 and 12 inches, whilst they would be subjected to fewer sudden changes.

Just now, many with their one little house will have a row or two of Strawberry pots in their greenhouse. Some succeed very well in producing good fruit some weeks before they can gather in the open air, and we know the zest and pleasure it gives them to be able to take a few fruit to a sick friend before such can be obtained out of doors. Many, however, succeed very indifferently. They have good plants well-ripened early in autumn, they plunge and protect them from severe frost in winter, they top-dress in spring, they water so judiciously that we could not improve upon it, they have excellent bloom, but, after all, it mostly becomes blind—that is, refuses to set, and they have to take out the most of their plants as failures, even though they have kept more heat in the house and shut it up early in the afternoon to help them. Now, the extra kindness is the chief cause of the failure. The Strawberry, to succeed, must have room, must have free access to light, and whilst in bloom must have air, even if there should be no great openings in cold weather, yet fresh air there must be from openings however small. A close moist atmosphere, the very thing to encourage rapid extension and growth, will, if long continued, be the best means for saturating and clogging-up the pollen-tubes in the blooms, and preventing the desirable action of the parts of fructification. Extremes meet, and the same result will often be the consequence of the action of a free dry air on the parts of fructification. In such cases—in fact, in the proking weather we lately had, we have frequently found a gentle dewing of the Strawberry blossom of much benefit; then, when the sun had dried them, the parts of fructification were refreshed and enabled to perform their natural functions. We were first led to adopt this plan many years ago, from observing that Apricots, Peaches, Pears, and Plums that appeared a long time in bloom without setting in very dry weather and coldish nights, set very quickly after being refreshed with a gentle, genial shower. It must, however, be remembered, that on the whole we consider dryness better for setting than moisture, and continued rains have often ruined the crops of Apricots and other fruit, but there are exceptions to most if not all rules.

The close moist atmosphere is the cause of failure with many amateurs. A keen enthusiast has several times wished us to state his case. In his little house, he has a platform at back that held two rows of Strawberry pots, and a shelf with

one row in front. He syringed and shut up in April and May from three to four o'clock in the afternoon, wetting the floor, and generally gave air from 8 to 9 a.m.; he liked to see his general plants fresh and healthy-looking. The Strawberries bloomed beautifully, but always set most indifferently. He could not give up the damping and the syringing, but the Strawberries when in bloom were not touched by the syringe, as the moist atmosphere would be quite enough for them. Instead of shutting up closely at that time, from a quarter to half an opening was left all night, except in very cold nights, and then air was given the first thing in the morning. A little air was also left in front, and if the night was rather cold a lump of coal was set alight in the flue. With no alteration except the above, the Strawberries for some seasons have set beautifully. We are so far wrong, for in watering, a long feather or a dry hand was passed and repassed among the trusses of bloom to help to disperse the pollen. After being fairly set and commencing to swell, the Strawberry is not particular as to its position, but to acquire good colour and flavour it must have air and light.

As we have used no protection for Apricots and Peaches out of doors, we have not yet disbudded any, as the young shoots will be a good protection, and they will do no harm as yet. Unless a severe frost come on we shall be safe, and then if it come we must try and neutralise its influence. We have had signs of late of a blackthorn winter, and must, therefore, be on the watch. Disbudded, or rather stopped and removed young shoots freely in the orchard houses, and dressed Vines there by rubbing off extra shoots, these being more forward than we would have wished, thanks to the large squares of glass. Such glass will be an advantage under any circumstances, greatest, perhaps, when air can be given or taken away, but also, no doubt, of value when the air is left on night and day. Such a plan would avoid many dangers. Many of the failures in orchard houses are owing to the want of early air-giving. We knew of a case last May where the attendant in a bright May morning forgot all about the orchard house until between nine and ten o'clock, and then he was pretty well forced to run out again. Every small fruit tumbled from the trees, and dire were the denunciations against orchard houses. Some air ought to have been given by 7 a.m., and a late riser should have left air at the top all night.

We had hard work thinning Grapes, and we must look forward to more of it in other houses. To beginners we would say, Thin as soon as you can discern the berries that are fully set; keep the scissors dry and clean; leave the outside berries of the bunch at the requisite distance from each other, cutting off the inside berries more freely; touch the bunch with the hand as little as possible, but use a neat forked stick instead to keep it in position, and especially avoid touching it with the clothes and the hair of the head. We cannot use our water to syringe Vines, but in hot weather we can use water on the floor and stage. A great safeguard against red spider is a little air at the top of the house all night. Were we near a coal mine, we would hardly ever shut up a house closely now. Until the weather is warmer we open, however little, early in the morning. We shall give a little air all night before long. Less than half an inch will keep the apex airy, and prevent accumulations of vapour.

#### ORNAMENTAL DEPARTMENT.

Sowed lots of annuals in the open ground, as we like the ground to be getting warm. Sowed half-hardy annuals under glass, as we find they do better when not too long in hand before they go into the ground. Potted many things, and yet we are behindhand, and as we wanted hundreds of small pots, turned out into trenches and earth pits a great number of *Scarlet Pelargoniums* that had been potted, as in such weather they may stay there for several weeks. These have nice fresh roots in balls, and will begin to throw out more roots all round by lifting time. A little labour is required in thus turning them out, but then we set thousands of small pots at liberty to be used for plants that do not fibre and transplant well, and what we lose in labour we gain in pots and watering, as most likely they will receive no more watering until immediately before planting. It is true, we might plant out in the flower beds without so much preparation in previous moving, but then the floral display would be late, and more water would be required than when well-rooted strong plants are used.

We lately mentioned putting a great many *Pelargoniums* singly in small pieces of turf. These have done too well. The turf is now so full of roots, the sponges hanging out all round, that we fear we must move them into an earthen pit, to

prevent the roots running too far. The pots set at liberty come in for Coleus, Iresine, and other plants, which need to be well established.—R. F.

# METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending May 3rd.

DATE.	THERMOMETER.						Wind.	Rain.
	BAROMETER.		Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . 27	30.47	50.007	55	30	49	48	N.W.	.00
Thurs. . 28	30.052	50.255	53	28	49	48	S	.00
Fri. . . 29	30.080	50.710	52	32	48	47	N.W.	.10
Sat. . . 30	29.775	50.583	61	39	49	46	W.	.60
Sun. . . 1	29.694	50.560	59	33	50	47	N.W.	.02
Mon. . . 2	29.919	50.749	51	24	49	47	N.	.08
Tues. . . 3	30.074	50.917	53	25	47	46	N.W.	.08
Mean.	29.939	50.784	54.28	33.43	48.71	47.00	..	0.28

27.—Cloudy, cold wind; stormy; clear and cold.

28.—Slight rain; cloudy; overcast, cold wind.

29.—Overcast, cold; heavy clouds; densely overcast.

30.—Densely overcast; mild and overcast; cloudy.

1.—Cloudy and cold; densely cloudy; stormy.

2.—Overcast, cloudy, stormy and cold; stormy, sharp frost.

3.—Densely overcast; cloudy; clear and cold.

# TRADE CATALOGUES RECEIVED.

Dick Radcliffe & Co., 129, High Holborn, London, W.C.—*Catalogue of Bedding, Alpine, and Decorative Plants, &c.*

Child & Lorimer, Bradford Nurseries, Shipley, and 49, Darley Street, Bradford.—*Catalogue of New and Rare Plants, Bedding Plants, and Florists' Flowers.*

# TO CORRESPONDENTS.

EMIGRATION TO VIRGINIA (F. J.).—We cannot give an opinion. You had better write to the Emigration Society, Ludgate Hill, London.

LAWN MOWERS (A. B.).—With the ordinary lawn mowers, the cut grass being projected in front of the machine on to the grass to be cut, in a very short time, if not gathered-up into the box, entirely close-up the action of the machine and prevents it from cutting. The Archimedes, on the contrary, scatters the cut grass, and by the greater simplicity and freedom of action of the knives, it never is liable to clog. The grass cut by one would not be a whit more untidy than that cut by the others, only the Archimedes would be obliged to cut grass two and three times over, if necessary into particles like chaff.—B.

LARGE STRAWBERRIES.—Several correspondents with Mr. J. Reid (page 303), to state the name of the Strawberry which produced berries weighing 4 ozs. each.

CUCURBIT LINEATUS (F. R.).—None of the remedies you propose would be worth the trouble they were applied in quantities inadmissible. As you are willing to sacrifice the crop to exterminate the marauders, pare and burn the soil they haunt.

LEATHER FOR MANURE—SUGAR BEET (E. R. P.).—Leather scraps, the smaller the better, must be scattered over the surface, and ploughed or dug in. The market gardeners about Fulham employ such scraps as a fertilizer. We know no mode of dissolving them. The seeds of the White Sugar Beet are to be purchased of any of the wholesale seedsmen who advertise in this Journal. There are several French works on the culture and manufacture of sugar from it.

DIVIDING PERENNIALS (A Subscriber).—The process for dividing the majority of these plants is spring, when they are beginning to grow; but Primulas, and indeed all early spring-flowering plants, are best divided when the flowering is past, putting in the divisions on an east or north-west border, in sandy soil enriched with a little leaf soil or very old botched manure. Water freely in dry weather, and shade until established. The divisions may be planted out in autumn where they are to remain. If you merely wish to divide the roots because the plants have become too large, that is best done in spring when the plants are beginning to grow. It may be done in autumn, but spring is to be preferred.

FERTILISING ACCURBA FLOWERS (Idem).—The process is very simple; all that is necessary is to collect the pollen on clean white paper, and apply it with a camel's-hair pencil to the fully expanded female flowers. It will answer it as well if the male plant be placed near the female, if both be in flower at the same time.

ALSTROEMERIA SEEDLINGS (Amateur, Liverpool).—The seedlings may be potted singly in 3-inch pots, should be kept close in a frame until established, and when hardened off may be planted out at the beginning of June. They do not flower until the second year, but being hardy should be left out of doors throughout the winter, mulching in autumn with 3 inches of leaf soil or other loose material.

DYEING FENNELS (Lewis Bradbury).—There is no book on such subject exclusively. They only require to be spread evenly between sheets of blotting-paper, and kept gently pressed until dry.

GREENHOUSES (Hazelbank).—"Greenhouses for the Many" can be had free by post from our office if you enclose seven postage stamps with your address. For so small a greenhouse, 12 feet by 8 feet, we would employ a gas stove with a tube to carry the fumes outside. The stove could be removed when not required.

ORCHARD HOUSE TREES WITH IMPERFECT BLOSSOMS (C. P.).—We do not think that dressing your trees with soot, lime, and sulphur in the autumn would render the blossoms next spring imperfect. If too strong, it might cause the buds to fall, or even burn out their centre. We would

hardly use the three materials together without something cooling, as clay, to make the point. We think it more likely that the defective blossoms were owing to unripened wood, too great dryness, or too much stagnant moisture at the time of opening.

MILDEWED PELARONICUS (F. E. Fitch).—You have a little mildew and spot on the leaves of the Variegated Pelargonium, the results of a too confined atmosphere, and the foliage being damp when exposed to the sun. Remove the worst leaves, drench the walls of the place with sulphur, fresh stir and top-dress the soil in the pots, and give more air, and early, to have the leaves early dried.

BOX FORDS DYING (E. F. W.).—The salting of the walks is sufficient to account for the Box dying off, the salt having been placed too near the sides; or it may have been put on the walks in very bad weather, and after remaining there for a long time most of it has found its way to the sides. When salt has been put on just before a heavy rain, we have seen a Box die, and when grass is sown and the salt is washed in. How are the walks to be kept clear of weeds without salting them? You may use salt, but it should be on walks with grass, slate, or tile edgings, and when the salt is applied it should be watered so as to cause its work to be done quickly, but the walks ought not to be watered till the salt water runs. Put on, as it often is, thickly and left for weeks, it acts as a fertiliser rather than anything else, in fact we have two very decided opinions respecting salt. That though for a time it arrests the growth of weeds, they grow more freely afterwards. 2. That it makes the walks cold and wet, and gives, only a poor surface for turning and breaking them up in the spring, which, properly done, gives a clean surface, dry paths, and the material lasts longer. It is a troublesome plan, however, and so is every other. A better plan than salting is to dissolve 1 lb. of powder of arsenic in three gallons of cold water, and keep stirring well, then add seven gallons of water and 2 lbs. of crushed soda; stir the whole well, and apply hot to the walks with a rosed watering pot, and to keep it off the grass verges or box edging a board inclining to the walks should be placed against them. Apply in May in dry weather. The above quantity will suffice for 25 square yards.

CUTTING BACK GLOIRE DE DIJON and MARCHEL NIEL ROSES (Idem).—Now that the Gloire de Dijon has begun to grow we must not cut it down, but if you could secure a shoot from the base, and all means of encouragement and encourage cut the plant down next March. Marchel Niel we would cut back, but we would let it grow, and it will be no doubt give you some good vigorous shoots this summer, especially as it is on its own roots.

LEAFLESS BRANCHES OF A POTTED PEACH TREE (Dr. Amatur).—You may cut back the branches 8 inches long, that have nothing on them but a growing bud at the point; but if there are many such shoots, in order not to arrest the growth of the tree, it would be as well at first to nip out the axis of growth at first, leaving some leaves, and you could remove the shoots afterwards. Sheep droppings steeped in water make excellent stuff for manure, but if it should be given clear and not too strong. The small leaf of the Pear tree seems to be suffering from mildew, and a slight trace of thrips, though of the last we are not quite sure. It may be dry at the roots, and the remedy is to water. If not, syringe with weak water, and shade lightly from the sun.

YOUNG CHERRY TREE (M. S. C.).—The Cherry tree is promising enough. If let alone, the present semi-circle of blossoms would most likely be much widened next year. To increase the width of blossom space, stop all the longer shoots as they begin to grow, and cut back the shorter ones to about for fairly a third of the length. This will cause the buds on them to break strongly, and when each of these has made three or four leaves nip out the points, and you will have blossoming spurs for next season.

SAFEGUARDS FOR VINES (M. S. C.).—They are not injurious to Vines if used with discretion, but it is not best to trench given at once, nor in too strong doses. We do not recommend sponges for top-washing because they vary so much in strength and the mixture of material. For applying to the head of a plant, we prefer weak soap water dissolved in water some hours before using it.

RINGING VINES (Amateur).—We should never think of doing so, however the plants be grown or treated. Unfortunately we have had a great deal more ringing than we like, and rats have been the principal ringers. We found this morning the stem of a Vine scraped for fully a foot in length, and not a bit of bark left. In an extreme case, where the removal of a ring would be likely to do great harm, it is better to ring the wood, a slight ringing might be of advantage, but on the whole we have had enough of ringing done for us without doing it ourselves. What say others?—R. F.

OLD HAWTHORN HEDGE (Idem).—Under the circumstances we should decidedly advise you to cut back your old Thorns, and pretty well too, as they are so dry and hard, and likely to break off. If you cut them all, or even a month or six weeks ago, might have kept the old stems.

OYSTER PLANT (Twenty-five Applicants).—"A YARDIE GARDENER" would have had enough to do to supply you. He informs us that a Glasgow nurseryman purposes raising a supply, and will advertise when it is ready. It may also be had under the name of Lithospermum maritimum, from Messrs. Backhouse, of York, and, perhaps, of others who deal in alpine and herbaceous plants.

THE SWEET POTATO (H. S. C.).—See preceding answer. It is much prized in America, but cannot be successfully grown out of doors in this country.

EXHAUSTING NETTLES (X.).—The best and only plan we know is, with a strong-tined fork to dig them up now by the roots. Dry weather is the most suitable, take up as much of the roots as possible and leave them a day or two to dry, then knock all the soil off, and cut them away, also the shoots that have roots. The hollowed-out ends be filled in, and sown with grass seeds, Poa nemoralis predominating, as the land is shaded by trees. The removal of the Nettles roots will not injure the Fir-tree roots, ordinary care being taken. Use a spade as little as possible.

STANDARD COMMON LARCEL (A. Macfarlane).—The best plants would be those from seed, as they would grow the most freely, but plants of cuttings or even layers would answer. In the case of cuttings and layers remove all the eyes or buds below the surface at planting-in, or if that has been neglected, the shoots which come from the bottom must be cleared away as they appear. You will need to select plants which start from the bottom with a clean straight stem, and must cut in the side shoots to two

plants, keeping them closely pinched to one throughout the summer. The leader must not, of course, be interfered with, but should be trained erect to a stake until it is the height required; then if it be cut back in spring, you will have shoots from the upper part that we would reduce to three, and stop them at the sixth joint; the shoots on the stem being by degrees removed during the summer, and in the following March cut together cut off close to the stem. The shoots will need to be tied down, stopped, and regularly cut to form a compact close head. Why have standards? Surely bushes and pyramids are far more beautiful.

**SEEDLING CINERARIAS AND CALCICOLARIAS AFTER FLOWERING (T. C.).**—After they have flowered cut off the stems, place the plants in a cold frame on an east border, and shade them from very powerful sun, keeping them moist but not very wet. After June 1st higher may remain at night, and in dull showery weather, but in hot dry weather keep the plants cool and moist by shading and sprinkling with water. At the end of August place the offsets singly in small pots, and return them to the cold frame, keeping them cool, and close and shaded for a few days, then harden them off and treat them as before. Shift into larger pots as those in which the plants are become filled with roots, and before frost remove them to a shelf in the greenhouse. Cinerarias do well in that way, but Calicolarias do not succeed so well; indeed, they are not worth keeping for the second year's bloom.

**LIQUID MANURE FOR VINES AND ZONAL PELARGONIUMS (A. Noice).**—Guano at the rate of 1 lb. to twenty gallons of water, is sufficiently strong for Vines in borders, and Zonal Pelargoniums in pots. To the latter it may be given to advantage. Vines will not need any until the berries are well set, and then it may be given every fortnight or three weeks up to their changing colour, when it should be discontinued. If the border be outside, the watering will only be needed in dry weather.

**CUT FLOWERS OF PELARGONIUMS (Idem).**—It is hard to tell which is the proper way; but we think the stem and leaves that accompany the truss on the plant should be those exhibited, and yet they are shown with the truss and leaves around; indeed, as a bouquet. Consult the secretary of the show at which you intend exhibiting.

**GRAFTING VINES (John Anderson).**—You may graft your Vines now as described at page 318. They will do well grafted, and be far in advance of any Vines you might plant out. Although the grafts may succeed, they will do better, and you will obtain far finer roots for next season by not allowing them to bear fruit beyond the graft this season. The stock after it has been down to where you intend putting in the graft, leaving only one shoot and a few leaves to draw up the superabundant sap which, after the graft has taken, should also be removed. By all means graft.

**DITCH OF LARGE PLUM TREES (W. J. S.).**—We are quite unable to assign the cause of your Plum trees dying in the way you mention. We have observed the same peculiarity on several, and have been unable to understand the reasons. At page 337, vol. iv., there is an illustration to this in noticing the Plum trees of Mr. Dancer, of Chiswick, who loses many trees in the same way. Can any of our correspondents assist us?

**VARIOUS (One that intends to do his duty).**—I. With respect to keeping the horse droppings in themselves, we think there is no necessity for it except for very early forcing. Mixing them with the horse's dung, and throwing them into a heap along with the horse dung, is no doubt the best plan for general purposes. 2. Liquid manure is a very good fertiliser; you do not get it too hot, but remember Discretion is often the better part of effort. Take care that it is not too strong. 3. Cutting the edges of grass with the edging iron ought only to be done to keep the proper line; when the edges become crooked, irregular, or jagged the edging iron may be employed to straighten them, but inches should not be taken off. If so much must be cut off there has been great neglect. 4. You are quite right with respect to the thrrips; we cannot, however, see the propriety of fumigating where there are no insects, nor do we think Pelargoniums are better of it; if you fumigate when the first insect is seen you will be in time. It is when the insects are allowed to obtain a hold of the plants that the great mischief is done. We concur in most of your conclusions, and in those we do not we have pointed out the fact. Do your duty, but you will not advance your own interests by finding fault with your predecessor. Be charitable, especially to members of your own profession.

**CAMELLIAS INFESTED WITH BLACK APHIS (Mac).**—It may be destroyed by fumigation with tobacco, the house being kept up close, and a calva evening being chosen. The house should be so filled with smoke that a plant cannot be seen from the other side of the room. The foliage should be dry, but the doors, &c., may be wet. It will not injure the plants if they be taken to deliver the smoke cool, and the material used be of good quality. It may be necessary to repeat the fumigation; you must persevere until the plants are free from the insects.

**SCURFING PIPES TO KEEP OFF RED SPIDER (Idem).**—The pipes may be sulphured as soon as you desire, and as often as is required, and may be freely. The sulphur will not adhere to the pipes unless you mix it with a solution of 2 ozs. of soft soap to the gallon. For Melons it is well to apply the sulphur to the pipes at an earlier stage—before the flowers expand, or earlier, as the red spider often attacks the Melons in a young state.

**RED SPIDER ON PEACH TREES OUT OF DOORS (Idem).**—Sprinkle the trees as soon as the blossoming is over and the fruit fairly set, with a solution of 1 oz. of soft soap to the gallon, and this you may repeat every fortnight until the fruit is full-sized. It would also be well if the trees were syringed by a garden engine every evening during hot weather, and had in addition a good watering at the roots every week in dry weather; every alternate watering may be of liquid manure. Good soakings of water only are of use; merely wetting the surface does more harm than good.

**TRITONARIA HARRISII (Idem).**—The colour of the flowers is deep blue or violet, with a yellowish white throat. It is one of the best. It will not injure Fuchsias to fumigate them with tobacco.

**DIAMANT TRACTE VINE (G. F.).**—It is the old Scotch White Cluster, a very good second early table grape. The berries are large, very pure in colour, and very pleasant to eat; it is sometimes a little setting; therefore, when in flower draw the hand gently over the bunch to assist the setting. It will force well. We should advise you certainly to uncover your Vine borders now, and manure them slightly with a coating of manure instead.

**CAMELLIAS UNRELIABLE (D. D.).**—You do not say whether or no the above heating your conservatory has a funnel or chimney communicating with the external air, or if you keep a vessel of water upon it so as to prevent the atmosphere from becoming too dry. If it has not, that alone is sufficient to account for the Camellia leaves being yellow, brown, and curled, and the buds dropping when of the size of ants. We advise you to have a chimney to take off the fumes, and a vessel of water on the top of the stove before another winter. Put the plants in tart taken from a pasture where the soil is a sandy or light loam cutting it off an inch thick, tearing it rather finely to pieces with the hand, and in turning out the plants remove as much of the old soil as you can without injury to the roots. In winter, that is what we want, and as the compost will be rough pot rather firmly, and do not use too large pots if they hold the roots without cramping, and admit of about an inch of soil all round they are large enough. Do not water too much for a time, but keep the plants moist by sprinkling overhead, also rather close and shaded from bright sun. When the plants are growing freely water copiously, and admit air moderately.

**INSECTS (F. Manning).**—Not an insect was in the box. It was crushed and "the flying insects" had flown.

**NAMES OF PLANTS (F. Fowler).**—Erica herbacea. (W. B.).—Cedonia japonica, Japan Quince. It may be propagated now by layers or cuttings. (Ignoramus).—Probably Iris pumila; but the specimen was small. (Seedling).—We never name plants from their leaves only. The Cineraria pil. is large, but not superior as a florist's flower. (W. B.).—1, Polypodium Dreyeri; 2, Daphnia candida; 3, Dicksonia antarctica; 4, Blechnum boreale; 5, Microcladia nova-zelandica; 6, Solanella robusta. (South Devon).—1, Tetratheca ericifolia; 2, Correa a. munda; 3, Acaia palchella; 4, Templetonia retusa; 5, Grevillea ovata; 6, Goudia imberbis; 7, Fuchsia microphylla. (West Cornwall Reader).—Thymus Serpyllum, var. lanuginosum.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### RATIONAL POULTRY-KEEPING.—No. 1. GARDENING FOR CHICKENS.

"We have been frightened from our property—sensational articles in poultry matters; gentlemen hitherto respectable suspected of trimming their fowls; others equally correct, openly charged with borrowing fowls for the sake of winning prizes. Dear! dear! our old twaddle will amount to nothing. We have not spied enough. We walk about with our eyes shut—we do not seek for tricks. We are very sorry when we see a 'disqualified' ticket stuck up; and we have known many disqualification cards put up that have been great injustices. On one point we will go any length, and that is, to discourage anything like betting or gambling on poultry events."

Such were our cogitations as we wandered among our chickens, but our conclusion was—"We do not care, they may do as they like. Poultry were made to breed and to eat; and after all, showing is not all pleasure or profit, and—we repeat—we do not care."

Therefore, we still walked on among our chickens, and noted them. There were many good ones. We looked at them with pride, and gradually settled down to "pure and simple poultry," such as it was before showing was a fashion.

We will describe our walk, and our experiences. We began by visiting our favourite walk for chickens. It is a small enclosure used for putting up a haystack or two, and having always some stumps of hay, also the faggots and rubbish that formed the bottom of the rick left. It is sheltered by trees, and surrounded by a dry ditch. There are nettles, sow-thistles, docks, and wild parsley, growing in profusion, and now just high enough to afford covert. Being surrounded by a dry ditch it will easily be understood there is a high bank, and banks are always dry. We were on bad terms with ourselves when we reached there, but as we leaned on the rail and watched the whole scene, we fancy the wrinkles disappeared from our brow, and we think we imbibed some of the spirit of enjoyment we were witnessing. They were stout-growing rogues, and as they lay in the sun, they seemed to help Nature by blowing themselves out. They were playing at "king of the castle"—every part of the bank was occupied by chickens, holding it against all comers from below; and as they were engaged under a waving dock leaf, the monotonous motion of which seemed to mesmerise them; others were hurried in dust; some lay on their sides, and put up their apologies for wings, that the heat of the sun might thoroughly warm them. All were growing, and in the height of enjoyment. At this walk no chickens ever die—none escape to roost. For these reasons we have given a full description of the place, hoping some will learn from it.

We some time since walked over a very small garden in semi-darkness. It seemed to us we were going over a large space, but when we saw it by daylight we found it was very small, but that it was admirably arranged. On making the remark to our host, he laughed and said it was surface-gardening, and

that he doubled his surface by making it as uneven as possible. Ever since then we have been beset with an idea of poultry landscape, an accidented surface. We are sure that fowls get as tired of the flat, dreary uniformity of an ordinary pen as we do of looking at it. For young and old now, except in wet weather, we have the surface of the pens constantly dug up, and left as roughly as possible; once or twice in the week we have it all piled in a hill. We constantly add to the surface of the pens by the addition of road grit, but we always pile it in a heap. Whether with younger old, it is soon scratched out and levelled. The employment is not half the advantage; while they are searching and scratching they find food constantly, as they never leave off picking. At all ages we notice the avidity with which they pick out and swallow every morsel of green stuff.

That reminds us of a promise we made ourselves many years ago—that we would warn poultry fanciers against over-feeding, especially with corn food. Abroad every refuse leaf from the garden is carefully saved for the poultry, and they like it, and do well upon it. Cabbages in a Belgian garden always remind us of Middlesex elm trees—a long bare stem with a bunch of boughs at the top. The heart of a Belgian cabbage sooner or later must find its way into the *pot-au-feu*, but every sprout is equally certain to go to the poultry. It is far better for them than all corn. The latter becomes too heating, and when much Indian corn is given it is also too fattening. It prevents the formation of healthy eggs, and when they are formed it makes it almost impossible they should be laid. Fat and internal fever stay their thousands in the laying season. The feather-picking, of which so many complain, is, we believe, caused by internal fat and fever—a condition of body that is destructive to natural appetite, and yet causes an unhealthy craving which fowls seek to satisfy by any expedient. In this state they—like over-fed and pampered lap-dogs—will turn away from food that would be delicious even to a human being, to feed on any garbage, especially that which is decayed and offensive. This makes them cannibals. Let us imagine for a moment the condition of penned fowls in places where they are kept scrupulously clean, fit to be shown to friends at any time; the level run in front of the roosting house, smooth, as the owner boastingly observes, as a billiard table, carefully swept every morning with a hard broom till it forms a surface on which a grain of corn or maize will roll and run, almost bound along—it is the small garden, laid down in lawn, with here and there a flower. We would break up the surface, pile the broken earth in two or three mounds, bury in them some soils of growing grass, and throw in some grit or ashes. The listless, spiritless fowls will become busy active workmen, like ants in and on their hill, and health will return.

This has been a long digression, but we have complaints of chickens dying, with lamentations over the east wind; and when the east wind goes, then the drought; and when the drought is gone, then the wet. We have gardened for our adults and chickens, and they have never done better. We give them lots of green food. Neither adults nor chickens are ever without growing grass. We place the lanes under contribution; under the hedges, where it is damp, and the grass grows, we dig up turfs with lots of earth. The fowls eat the grass the first day, and when it is turned over the next day, they eat the earth.

### MANGOLD WURZEL FOR POULTRY.

A few years ago I fed my fowls on barleymeal mixed into a paste with boiled mangold wurzel instead of with water. They kept in capital condition and laid well. This year my hens have eaten a great quantity of pulped Swedes and mangolds, and have been very healthy. I took the idea of boiling the mangolds from my father, who found that they kept his foxhounds in a cool healthy state during the summer, and who used them largely for that purpose.—*CHREVÉ-CHÉRE.*

### GUILDFORD POULTRY SHOW.

Will you permit me to inform your readers that a poultry show, open to all England, will be held at Guildford next July. The situation of Guildford, in an agricultural and poultry-breeding neighbourhood, with railways converging from six different directions, and within thirty miles of the metropolis, is eminently favourable to a successful show. An influential committee has been formed, to which we shall be happy to add the names of any who may desire it. A guarantee fund and subscription list have been opened.

Three prizes of £2, £1, and 10s. will be offered in each of the usual poultry classes. There will also be classes for Pigeons and Rabbits.

Cups will be given for the best pen of certain varieties, including my friends the Light Brahmas, in whose behalf a well-known exhibitor has undertaken a canvas. As my favourites are thus provided for, I am endeavoring to get up a cup for the best pen of Game fowl, to be given in lieu of first prize. In this breed there will be two classes, one for Black-breasted and other Reds, the other for Duckwings or any other variety.

As I am not so well acquainted with those gentlemen who are interested in Game as with the Light Brahma breeders, I shall feel grateful if any of your readers who are Game fanciers will help with a subscription on reading these lines.—*JOHN PARES, Postford, near Guildford.*

### CROSSING SITTERS AND NON-SITTERS.

HAVING noticed in your "Letter Box" a communication on the above subject, I venture to offer my own experience in the matter. Owing to two of my sitting hens stealing their nests in a wood, I became the owner of about twenty chickens from a Crève-Cœur cock and mongrel Game hens. Most of the chickens were pullats, and during my absence from home they began to lay, so that being short of hens I did not kill them, but kept them until the following autumn. I found that the half-breds laid remarkably well, and with one or two exceptions showed no signs of being broody until June and July, when I put Ducks' eggs under several of them, and found they sat very closely and with great success; but I think little of that, as it is easy to make any hen that is tame sit well and where you wish her. I do not advocate cross-breeds for sitting, but I am sure that for laying eggs they are as good as, or better than, most of the pure-bred sorts.—*CHREVÉ-CHÉRE.*

### FLYING TUMBLERS—BIRMINGHAM ROLLERS.

No. 2.

My last article concluded with a description of what I consider to be the best and safest mode of procedure in commencing to raise a flight of Tumblers.

If the fancier does not care for a little expence, he can, of course, dispense with the commoner birds, and commence at once to fly the more expensive ones. It does not follow that because they are more expensive he will be sure to lose them. The chances are, however, greatly against his keeping them all where an entirely new start is made. By not flying them or knocking them about, he gives them a better chance of breeding, and, of course, raising a flight of young birds quicker, and, if they are of a good strain, he has always the nucleus of another good flight, should any misfortune befall his flying birds at any time. In Birmingham and the neighbourhood a beginner has every advantage. He can purchase two or three good pairs of birds from a neighbouring fancier on the condition that he has them "broken to him." The meaning of this phrase is, that every time they go back to their old home they shall be returned to him, until they get a sufficient knowledge of their new abode. When they have acquired that, instead of letting them into their old loft when they return, their former proprietor drives them up again, and after a time or two they settle quietly down to their new residence. The advantage of this plan is the very little risk there is of losing them in getting them about—this is, well acquainted with their homes. Then, again, the plan I recommend of purchasing cheaper birds has an advantage in another way, and especially in this neighbourhood, and it is this: In almost all the numerous "cages" or Pigeon shops that there are in this town and neighbourhood, there is what is called a "caught hole"—that is, a pen into which all birds that are caught are put. Hundreds of Tumblers are lost and caught in Birmingham every week, most of which find their way into the cages. Unless the persons who catch them happen by chance to see them good before they are caught, they can be purchased at 1s., 1s. 3d., or 1s. 6d., each according to their looks, so that a beginner is only to get a judge to pick him out a few of these birds, and the chances are that most of them will, when he gets them home and flies them, turn out to be good Rollers or mad Tumblers. This is well understood by all experienced fanciers, as they know by sad experience that in a "fly-away," or from any other cause, if any of their birds are missing, it invariably happens that they are the best. Take, for instance, the loss of the two fanciers I alluded to in my first communication to this Journal, where in all forty-nine birds were lost, and every one of them first-class. It is a well-known fact that an old hand at Pigeon-flying can give a pretty good guess whether a bird is a good one or not by the feel of it in the hand and its general appearance.

Of course it would be out of place here to give a list of the dealers of whom good birds are to be had, they can be easily ascertained; but as "READER" recommends Mr. H. Yardley, of the Market Hall, who, it seems, has given him satisfaction, I may, perhaps, endorse his recommendation, the more so as I believe he either has or is about buying several good flights of these birds. Dealers will always guarantee the birds they send out, as it is an invariable rule with them to see the birds flown before they purchase them. The prices, as I stated in my first communication, vary according to quality.

I am afraid I have dwelt too long on this subject, so will at once get to the practical details as to breeding, &c.

As regards matching flying Tumblers, no general rule can be laid down. I would only caution against pairing birds too closely related, or extra good in roll, or the chances are that some time or other the progeny will roll down. A long Roller and a good mad Tumbler are a good match, or two mad Tumblers and short Rollers. Two very long Rollers ought not to be paired together. If the fancier is particular about colour, flights, muf legs, &c., these matters must be taken into consideration together with the above. It needs no words of mine to show the advantage of always letting the birds sit in nest-pans. The ordinary earthenware ones, sold by any dealer, are the best; but where these are not to be had, a common good-sized tree saucer may be used. Every care should be taken to give the birds a comfortable nest, any little extra trouble in this respect will be amply repaid. The plan I adopt is to put a handful or so of deal sawdust at the bottom of the pan. I then get the straw (oat or barley is the best), and rub it well to make it soft, and pad it well into the nest-pan to make the nest as firm and solid as possible. The sawdust keeps the straw firm in its place, half the usual amount of straw suffices, and a solid bottom is formed, the eggs are kept warmer than if they were in a loose nest, and the natural consequence is greater success in hatching. I would also recommend a diary being kept of the dates when the birds should hatch, as by that means the fancier is enabled to save many a young bird, which he would otherwise lose, by helping it in hatching, should it be necessary.

As soon as the old birds leave off sitting on the young ones, another nest should be placed at the opposite end of the breeding place to be ready for the hen when she lays again. The cleaner the young birds are kept the better they will thrive. Above all, keep them free from vermin, and do not let the dung accumulate round the nest-pan. If once the vermin get ahead no end of trouble and loss will be the result. As soon as any are seen give the young birds a clean nest-pan and nest at once, and thoroughly cleanse them from the insects by turning up the feathers and blowing them out. They will be found mostly under the wings, round the neck, and about the head. Follow out the above plan thoroughly without fear of any of the tales about scouring, &c. In the course of a very long and successful experience in Pigeon-breeding I have served hundreds of young birds in this way, and never had a single bird scoured through it. Do not let it be supposed, however, that I advocate unnecessary handling. I consider it a good plan to put a good sprinkling of slacked lime under and around the nest-pan. Let the nest-pans be well scalded, cleansed, and dried every time they are used, dissolving plenty of soda in the water. These suggestions are, of course, applicable not merely to flying Tumblers, but to Pigeon-breeding in general.

Before leaving the question of breeding, I must refer to a very important point which I have been specially requested to mention. The subject in question is the recommendation by "READER," in the Journal of March 10th, to rob alternate nests, to prevent sterility and weakness. I wish distinctly to caution any young fancier against putting this suggestion in practice. In the case of experienced fanciers my caution, I know, is needless, as there is no fear of any one of them being induced to adopt it. Such a practice would, before any other cause, produce just the very thing it is intended to obviate. If the eggs of the second nest were taken away the hen would lay again in seven or eight days at most, and very likely thin-shelled eggs, which would be broken in sitting. If the eggs were found a week would merely be gained, and the hen greatly weakened by laying again so soon; in fact, during the season she would lay just a third more eggs than she would have done if left to follow the course of nature, and the fancier would lose one or two pairs of young ones. It is a well-known fact to all experienced breeders, that if there is any time when the old birds neglect the young ones more than another, it is while the cock is driving his hen to nest, so that in addition to

the young ones being neglected three or four days before the eggs that would be taken away are laid, they would be again subjected to like treatment during the following week. I do not think this would tend to rear strong young ones. I always find the young birds fed better when the old birds have laid again. As to robbing the nests persistently through the winter there is not the slightest necessity for it. When it is time to stop breeding the nests should all be taken away, as well as any materials wherewith the birds could make one, and the fronts of the breeding places taken down. The birds will then stop laying without any further trouble, and will not commence again till the nests are put in at the beginning of March. I think I stated in my first communication that the end of July or beginning of August was the time to leave off breeding, as the young ones after that time are very little use as flyers.

(To be continued.)

SINCE forwarding the above remarks I have been desired to send out a few pairs of young birds from first-class stock, as a means of rendering an additional assistance to persons desirous of entering into the flying fancy. I shall be happy to comply with the request, as by so doing I shall bring my remarks to a practical conclusion, and I do so the more readily because the proprietors of one or two of the first flights in Birmingham have placed their young birds at my disposal should anyone require them. I will, however, advertise particulars in the Journal.—T. HALLAM, *Burbury Street, Birmingham.*

## GREAT MEETING OF GERMAN BEE-KEEPERS.

HELD AT NUREMBERG, SEPT. 14TH, 15TH, AND 16TH, 1869.

On the 14th of September, 1869, the assembled company was greeted and welcomed in the usual manner by representatives of the Government of Bavaria, the Burgomaster of Nuremberg, and other notabilities; and Mr. Schmidt\* was decorated, in the name of the King of Bavaria, with the cross of a Knight of the First Class of the Order of St. Michael, and received besides the gold medal of the Agricultural Society of Bavaria. No less than twenty other offerings, from a purse of nearly £100, a valuable microscope and artistic preparations, down to poems and photographic albums, were then presented to Mr. Schmidt on the part of smaller societies, or individuals. The meeting also resolved to address the King of Bavaria to remove Mr. Schmidt from his present laborious post to one where he might devote his time more fully to apianian matters, and pay more attention to his somewhat impaired health.

These proceedings were followed by a historical sketch of bee-keeping in and about Nuremberg, formerly the bee-garden of the German Empire. Some interesting documents were referred to, showing the privileges accorded to bee-keeping by the Emperors in the middle ages, and showing, too, how suddenly in the middle of the sixteenth century bee-keeping collapsed until it was, in point of fact, revived by Dzierzon.

After this the real business of the meeting began, the first question being—

1. WHAT ADVANTAGES ARE GAINED BY CROSSING THE BLACK BEE WITH THE ITALIAN, EGYPTIAN, CAENALIAN, AND HEATHER BEE?—Mr. Vogel, of Lehnradshof, near Zeebin, commenced the discussion. The question really is, whether it is possible to form a superior breed of bees, and if so, what principles must be followed. Dzierzon hints between "variety" and "breed." He remarked that "variety" would comprise many natural qualities, such as, good or bad temper, disposition to swarm freely, to breed drones, &c.—in fact, such qualities as might, perhaps, be expressed by the word character, and what the speaker meant by "variety" was founded upon this only, and not on any external markings, or the like; so that if the bees of any district were distinguished for special tendency to swarming, he would call them a variety. And the heather bee, the Austrian bee, &c., are simply so many varieties of the common black bee. The various characters depend mostly upon such conditions as locality, pasture, or climate, in each district, and are, therefore, likely to disappear in time if the bees be removed and exposed to other influences. Consequently, Mr. Vogel thinks that the question of "variety" is of very inferior importance in seeking to establish a superior "breed" of bees; and further, that it would be simply impossible to secure one breed which should be equally suitable for all the various climates and districts of a country so large as Germany; hence, that each special division of Germany would require a race of bees suitable for itself, and in consequence of this, the varieties of the honey bee become of considerable importance.

Some people imagine that time and trouble have been thrown away in the attempt to preserve foreign varieties of bees perfectly pure; but this is a mistake, for, first of all, it was necessary to have a considerable quantity of purely-bred bees from foreign varieties; and, secondly,

\* Editor of the German "Bee Journal."

† So called from a district in Hanover.

it was necessary to study carefully the character of each race before we could tell their respective values in forming the highly improved breed at which we are aiming.

Mr. Vogel then proceeded to give the results of his experiments and observations.

1. *Cross between the Black and Italian (Egyptian) Bee.*—It was observed that the working bees from eggs laid by an Italian queen impregnated by a black drone did not show the mingled outward appearance which was expected. In the second stage, the progeny as it were divided, part being like the Italian, part like the black bee. By going on breeding with these bees carefully, after four or five generations the one came back to the type of the Italian bee, the other to that of the black bee; but this is of inferior consequence, as it relates merely to the outward marks of colour, &c. The more important question is, whether the character seems to be transplanted into the mixed race? Some bee-keepers assert that the off-spring of the black and Italian bee is more gentle than the original black bee, others maintain the exact opposite, and the same as regards their industry in honey-gathering; but the natural differences of character between these two bees are too slight and subtle for certainty. The next point to be considered may perhaps throw a little light upon the subject.

2. *Cross between the Black and Egyptian Bee.*—When first the Egyptian bee was introduced by the Berlin Acclimatisation Society, and placed under Mr. Vogel's care, he did not rate its value for scientific purposes very highly, for he believed that all that was to be learnt was already made clear by means of the Italian bee. But now he thinks that the future, as regards discoveries to be made in the theory of apiculture, belongs to the Egyptian bee.

The first worker offspring of an Egyptian queen and black drone were scarcely larger than pure Egyptian bees, and were in other respects quite of the Egyptian type; the drones, of course, were pure Egyptian. The next step was to breed queens of the mixed race, and by Mr. Kohler's process to take care that they should be impregnated by black drones. According to the rule observed in similar crossings with the Italian bee, the worker offspring in this generation should have been of two types, half of the bees black and half Egyptian, but such was not the case. There were two types in the offspring, but the distinctive marks of the parent varieties were completely mingled in part of the mixed progeny. One part of the young bees was so like the Italian bee in colour, size, and character, that no one could distinguish them from Italians. The other part was black with white hairs like the Egyptian bee, and of exactly the Egyptian size. The idea naturally presented itself, What if the Italian bee be the result of a cross, perhaps thousands of years ago, between the Egyptian and the black bee? Mr. Vogel mentioned this idea to some friends, and he would not wonder if, and to the great credit of Mr. Vogel, who said that he could discover no difference whatever between the bees sent to him and genuine Italians, but that the hypothesis had no solid foundation, inasmuch as the geographical distribution of the honey bee spoke against it. But upon reading through Dr. Gerstaecker's work on the distribution of the honey bee, Mr. Vogel could find no argument on either side, and determined to try one step further, which would make his hypothesis still more probable, if it ended as he expected. The point was, What kind of drones would a queen three degrees removed from pure Egyptian blood produce? The drones appeared, and were of two kinds: a one not to be distinguished from Italian drones, the other the size of Egyptian drones, with black bodies and white hairs. Again Mr. Vogel bred from a queen two degrees removed, young queens which were impregnated by a drone of the Italian type from the same mother. The worker bees produced were all like the Italian bee, but the drones naturally were of the double type. Further breeding into the third and fourth generation, produced the result that all the drones also assumed the Italian type alone. In answer to the objection that such a mixed race would show a tendency, according to rule, to separate into its original factors, Mr. Vogel remarked that he has now the nineteenth generation of the black Egyptian mixture, which remains constant, and if anything, grows more so from year to year, so that he is brought to confirm on one point—namely, that from a cross between the Egyptian and black bees a breed is produced which no one can possibly distinguish from the Italian bee.

Mr. Vogel sums up his observations on these singular results, by stating that he believes the black bee and the Egyptian bee to be original types, and that all other varieties, Italian, Grecian, Syrian, Chinese, &c., except perhaps the black bee of Madagascar, are the results of various crossings.

3. *Cross between the Italian and Egyptian Bee.*—The previous remarks have mostly had reference to the more or less unimportant subject of colour and outward appearance. In this case we come to consider somewhat of the character and disposition of the bees: no two varieties are more opposed in this than the Italian and Italian, the former are most irascible, the latter most gentle. And now we shall be brought to make out, perhaps, whether in what regards the disposition of the bee, the queen or the drone has the greater influence, whether the young bee will inherit the temperament of its father or its mother.

The result of pairing Egyptian queens with Italian drones was found to show that the character of the latter prevailed without any trace of the usual Egyptian ferocity. Conversely Italian queens and Egyptian drones produced an offspring as tractable as any genuine Egyptian; it appears, then, that the drone determines the character of the progeny, and that, therefore, in any attempt at improving a breed

of bees more attention must be paid to drones than has hitherto been done. Mr. Vogel then concluded, in order if necessary once more to join in any debate which might arise upon this question during the meeting.

Then followed the second division of the first question—

1. *WHAT ARE THE CHIEF DISADVANTAGES OF THE PURE ITALIAN BEE WHICH WE CANNOT HOPE TO REMOVE?*—Mr. Kaden, formerly Commissioner of Police at Mayence, opened this part of the subject. He commenced by stating that having heard nothing but praises of the Italian bee, and feeling convinced that nothing in this world was absolutely perfect, he determined to watch for their shortcomings; but at the same time he is a great admirer of this bee, and since the year 1859, when he received his first Italian queen from Dzierson, up to this time, he has had them sent from no less than seventy different sources.

Mr. Kaden has convinced himself that Italian bees have three principal faults, or weak points. The first he noticed was the frequent change of queens. In one hive, without warning, this change was observed three times in one summer.

The second fault was, that in every kind of swarm, even in artificial ones with young queens, drone comb is constantly built in the first season, which does not occur with the black bee; and further, the Italians sometimes commence at once with drone brood.

A third disadvantage is, that Italian stocks are generally weaker in spring than others, this has been also noticed by many leading apiculturists. One might then be asked, "Why do you keep on sending for Italian queens if you find such faults in them?" And Mr. Kaden replies: (1) For their beauty and gentle disposition; (2) In order to train, which he considers of very great value. He then read passages out of letters from two distinguished apiculturists, the first declaring absolutely that it was a fatal mistake to try to keep to pure Italians; and the second stating that he had almost made up his mind to discontinue his labours in this direction. He then concluded with an anecdote regarding the purchase of an Italian stock, which showed that as a matter of business the selling of Italians might be very profitable, even if they have no further advantage.

Mr. Dzierson, who was received with a storm of applause, next addressed the meeting. Whilst he was quite willing to allow that the Italian bee has its defects, like everything else under the sun, he still thought it the best bee we have. He did not think that the rapid change of queens was a rule, except so far as the Italian queens are certainly shorter-lived than their black sisters, but they are much more fruitful. In a short life they produce as numerous an offspring as the others in a long one. With respect to the alleged weakness of Italian stocks in spring, which would unfit them for localities with early honey harvests, Mr. Dzierson thinks that this is connected with one of their chief advantages; for it arises from the fact that they cease breeding earlier than the black bee, and thus, aided by their extraordinary diligence, they often furnish plentiful and ample supplies of moderately good bees. This excessive diligence has of course its shady side in the fact that an Italian hive often becomes dangerously weakened by the continual self-sacrifice of its denizens in bad weather; but if they only reach the beginning of the fine season, their extraordinary fruitfulness soon makes up for the loss. The next disadvantage is the tendency to breed drones; now Mr. Dzierson himself has found the reverse to be the truth with perfectly pure Italians, and has at times been obliged to insert drone combs into Italian stocks, when for purposes of propagation he wished to be sure of a plentiful supply of drones, the Italian bees of themselves not furnishing a sufficient quantity. Mr. Dzierson must therefore oppose Mr. Vogel, and maintain that the Italian bee is the best of all known varieties, and in itself already the sought-for breed.

Mr. Vogel in reply denied that the Italian could be esteemed the breed in question, as what was wanted was a bee possessing the combined advantages of every known race.

Mr. Richter, a Wartenburg apiculturist, could not join in the praises usually awarded to the Italian bee. He had found it neither gentle, industrious, nor averse to swarming, &c., beyond the black bee. He touched upon the great advantages since derived from observations made, especially by Dzierson, with the Italian bee, and meeting with his own experience as tending to show that the bee of Carniola is on the whole better than the Italian.

Mr. Futterer, of Stein, Grand Duchy of Baden, doubted whether it was true that the Italian bees change their queens so often as some persons had maintained. Probably when some apiculturist happens to possess a very fine specimen of an Italian queen he is always opening his hive and exhibiting her, and no wonder if in such a case her life be not a very long one. This speaker agreed on the whole with Mr. Dzierson as against Mr. Vogel.

Mr. Rothe next excited much merriment by remarking, that as a large bee was the great point aimed at, and Mr. Vogel had undertaken to produce the largest variety of bee by breeding from the Egyptian and black bee, he would confer a great kindness on apiculturists if he would save them the trouble and expense of going all the way to India by breeding *Apis dorsata* for them at home.

Mr. Vogel explained that he had spoken of varieties of *Apis mellifica*, whereas *A. dorsata* was another species.

Mr. Kneipp, of Worshofen, spoke in favour of the Italian bee, but remarked that it required somewhat different treatment from the black bees, especially in spring and autumn.

Major Von Hruschka, living in the country of the Italian bee, stated

his experience to be that the queen is not changed more often than with the black bee. By experiment with six stocks he found that four queens reached the age of five, and two that of six years. As regards the change of building drops comb even in the first year, he considered that it merely proved that the queen reaches in its first year the stage of development, which the black bee only attains in the next spring. The other disparaging statements of Mr. Vogel were disputed by this speaker, who also, in reply to a question asked by Mr. Kohler, stated that having received two colonies of black bees from Germany, he had observed that they were much less laborious, and much more fond of stinging than their Italian sisters.

(To be continued.)

## OUR LETTER BOX.

**WATTLE AROUND SPANISH COCK'S EYE** (*Spanish and Thirl.*).—In both your cases the white of the face is overgrowing the eye. It is an excess of beauty. The only remedy, and it is not a certain one, is to cut narrow strips of plaster and straw the face back so that it cannot hide the eye. It is also well to wash it frequently with a strong solution of alum.

**FLEAS IN A FOWL HOUSE** (*E. R. P.*).—Sweep all the walls and the ceilings thoroughly with a stiff bristly broom or any other as stubborn. Clean and clean out all cracks, crevices, and corners. When you have done this, lime-white the whole, being careful that the mixture shall penetrate everywhere.

**GAME BANTAM CHICKENS** (*M. E.*).—No doubt it is either confirmed or incipient rump. If in the latter stage it will not give you much trouble. Wash the faces with cold water. Feed on bread and barley, and give pills of camphor once per day, each pill the size of a pea. If it is cold or incipient rump, this will cure them; if it does not, try Bally's pills. Remove the sickly from the healthy birds.

**WHITE COCKS AND PULLETS** (*W. C.*).—It is not uncommon for very early eggs to be unfertile, especially when they are laid by pullets. In cold weather cocks are very capricious in their attentions to hens, and cannot always be depended upon. Sometimes they neglect all, sometimes they continue their attentions to one. In nineteen cases out of twenty the cock that is condemned as useless in January, is found an excellent stock bird in March and April. It is evidently so in your case.

**WOODEN FLOORS FOR COOBS** (*C. B. Lynton*).—You will do no good in rearing chickens if you have wooden flooring for your coops. Let them stand on the ground, and let the ground be covered with 3 inches thick of dry road-grit. The hen should be shut in at night, and all day till the chickens are two months old, she will make a good fight with any weasel trying to get in through the bars in front. The chickens have no business in the hen-house. We do not think it disposed to blind the hen, but her eggs, and should watch her narrowly. Give her a good dose of castor oil, a tablespoonful and a half. It will cure some of her eccentricities, and likely induce her to become more useful.

**CHICKENS LOST AND FOUND** (*F. C. J.*).—Some other hens have access to the sitting birds, and lay in the nests. We do not think the vitality could be supported as long as you say. The activity of the eggs in the water is not so much an indication of their being near to hatching, as it is that they are laid in the water. It is the influence of the warm water. It is nothing uncommon to have a difference of three days in the hatching of eggs all put under the hen at the same time. If to these three days we add five more that had elapsed before the eggs were laid, it will give a difference of eight days between the first off, and this lively one. Without deviating from the plain rule, or having the appearance of going beyond nature, you defer waiting your eggs too long. If the operation is performed every day while the hen is sitting, much the better. It is the loss of moisture that causes the tough skin. It is the inner membrane of the egg that has become hard and dry, so much so that it successfully resists the action of the water. It has passed into the state of leather. You may soak leather and it becomes soft and almost pliable, but you cannot bite it, and it is hard to make a hole in it. How, then, can a poor little chicken with its weak beak make it escape? The only assistance you can give the chicken is to moisten the eggs every day. If you will confine your sitting hens, so that none other have access, you will have no more of these startling irregularities.

**DUCKS LAME** (*F. C. S.*).—The Duck is cramped, or she has great difficulty in laying. Examination will prove it. If there is anything like being egg-bound, the egg will be easily and distinctly felt. The remedy will be to dip the egg in oil, and if it does not come, to rub it with oil, reach the egg, as soon as this is lubricated it will be laid. As a rule the drake should be the largest, but at this time of year the Duck is often much heavier than the drake. If the Duck is cramped, let her be put in some sheltered place, covered with straw or soft straw, 2 inches deep, should be put in a shallow vessel. It should be a sort of grass, a few oats, some meal, and some gravel, the whole covered with water. It is quite likely there may be a natural cause for it all.

**HENS WITH SPASMODIC ACTIONS** (*H. T.*).—The twitchings of the necks and legs indicate prescience of the brain. They are over-fat; give them a desert-spoonful of castor oil, feed sparingly on barley-mal and mashed potatoes; give no hard corn, but plenty of lettuce leaves.

**SPANISH INCURABLES** (*H. J.*).—The laying two shell-less eggs united, and at another end with very little shell, indicate that the egg-system is inflamed, and probably from over-fatness. Give only soft food, barley-mal and mashed potatoes, with plenty of lettuce leaves. Spanish hens will sit occasionally, but it is unusual.

**PACKING EGGS FOR THE MARKET** (*W. C.*).—We know of thirteen eggs which, after journeying three hundred miles from Winchester to Reading, produced nine chickens. They were in a strong box, 2 inches of kail at the bottom, then an inch layer of oats, on this the eggs were laid on their sides, covered with an inch deep layer of bran, 2 inches deep of bran. A gentleman of much experience wrote as follows to us on this subject:—"As an experiment to test my mode of packing eggs, I sent five eggs more than 170 miles by railway; they were absent three days, and twice travelled the distance by rail. On arrival the eggs were fresh, and they were placed with some other eggs under a hen, and four out of the five eggs were duly hatched. These eggs were carefully packed, and the lid of the box screwed down. The only objection to oats as a packing material is, that sometimes, if not covered, an egg may be injured by the sharp end of an oat; I have only known, however, one or two instances of such

an accident. The plan I now adopt in packing eggs is to wrap each egg in several folds of newspaper, and then place a thick layer of cotton wool and straw cut to the length of the box, both under and over the eggs, filling up every interstice with pledgets of cotton wool. This plan prevents any chance of the eggs being broken, and preserves their vitality as well as the force of the ovis. There are four things I invariably do, and I think it ought to be done by every one who sells eggs for sitting, and that is to write on each egg, legibly with a pencil, the date on which it was laid. Eggs should should invariably have their lids screwed down. I have constantly received boxes of valuable eggs, of which not one has hatched, and I believe, solely on account of the lids being screwed down, the jar of the hammer destroying the vitality of the egg. No eggs should be packed in sawdust, nor should eggs more than ten days old be sent to any distance."

**MR. H. A. PIGEON LOFT** (*Weekly Subscriber*).—We went through the same trouble a year since, but succeeded in getting rid of the mice in the following way:—The vermin come by food; stop, therefore, the food supply, and they come no more. First we fed our Pigeons, water and all, but not food, for the last of the last, but cannot allow a dove to feed the mice especially like Indian corn, and would be eating it all day long, so we ceased to give it; then they preferred barley, so we ceased to give that. Pests they cared not much for, preferring food elsewhere; and as to the mice, being so numerous, they could not be exterminated, so we decided then to starve them. We also adopted Mr. Elakston's suggestion; we closed all the holes but one, that one being near the entrance into the loft, and putting a brick before that, like a door half open. We put in a strong box just an inch from the side of the loft, and the mice, as they all prepared to quickly ascend the loft at nine at night, closed the brick over the one hole, then struck a light, and away ran the mice behind the box, which we pressed to the wall; there was a slight cringing sound as of broken bones, and when removing the box, we found a row of mice, some of which we followed every night, killing them as they ran, then fewer, until all were gone. The mice that ran into the nests or other places we forced out towards the box, and not one escaped, or lived to tell the tale. We now always cover up the food closely before night, and have no mouse troubles. Boys might hunt an egg or a Cuckoo, but we do not recommend it, better chain the bird, it is their nature to be destructive. We never like to see a bird with a cut wing, it has falls and gets braised.

**MOISTURE IN GLASS SUPERS** (*D. E. F.*).—The presence of much internal moisture shows that the glasses are insufficiently protected, and in this state they are so cold that the bees are not likely to take possession of them. They should be well covered and wrapped up in several thicknesses of flannel, or other non-conducting material. The holes in the top had better be tied up with cotton, or wool, or paper, so that no quarter air, or better still, an upright stick may be inserted through each, to the lower end of which a piece of clean woolen comb should be attached in its natural position as regards the dip of the cells. Neighbour's hives may be obtained either at 14, Regent Street, or 17, 18, and 19, St. James's Street, London, W. or at Messrs. Stewart & Co., 10, St. James's Street, London, W. If, however, you mean to go in for moveable-comb hives and scientific bee-keeping, you had better write to Mr. Woodbury, Mount Radford, Exeter.

**ANTS IN STORE-HOUSE** (*E. T.*).—Gnats sprinkled round the walls of the store-house would produce a great deal of mischief. It does not smell pleasantly. Scotch snuff might do as well perhaps.

**SPARKLING RHUBARB WINE** (*Amateur*).—To every pound of rhubarb stalks, when bruised, put one quart of cold spring water, let it stand three days, strain it twice daily; then pour on seven gallons of water, and to every gallon of the liquor, put 3 lbs. of good loaf sugar; barrel it, and to every five gallons add a bottle of white brandy. Hang a piece of muslin in the cask, suspended by a string, and stop it up close. In six days the wine is of sufficient strength to bottle it up, otherwise let it stand in the cask a little longer. No yeast is added.

## COVENT GARDEN MARKET.—May 4.

NEW POTATOES are coming in large quantities, but have no influence on the price of good sound samples of old, which have made a considerable advance in price during the last few days.

### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	.....	.....	.....	.....	Mulberries.....	.....	.....	.....	.....
Apricots.....	.....	.....	.....	.....	Nectarines.....	.....	.....	.....	.....
Cherries.....	.....	.....	.....	.....	Peaches.....	.....	.....	.....	.....
Christians.....	.....	.....	.....	.....	Pears, kitchen.....	.....	.....	.....	.....
Currants.....	.....	.....	.....	.....	Pears, dessert.....	.....	.....	.....	.....
Figs.....	.....	.....	.....	.....	Pine Apples.....	.....	.....	.....	.....
Filberts.....	.....	.....	.....	.....	Plums.....	.....	.....	.....	.....
Grapes.....	.....	.....	.....	.....	Raspberries.....	.....	.....	.....	.....
Gooseberries.....	.....	.....	.....	.....	Strawberries.....	.....	.....	.....	.....
Grapes, Rothens.....	.....	.....	.....	.....	Watermelons.....	.....	.....	.....	.....
Lemons.....	.....	.....	.....	.....		.....	.....	.....	.....
Melons.....	.....	.....	.....	.....		.....	.....	.....	.....

### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	.....	.....	.....	.....	Leeks.....	.....	.....	.....	.....
Asparagus.....	.....	.....	.....	.....	Lettuce.....	.....	.....	.....	.....
Beans, Kidney.....	.....	.....	.....	.....	Marshmallows.....	.....	.....	.....	.....
Broad.....	.....	.....	.....	.....	Mustard & Cress, pannel.....	.....	.....	.....	.....
Broccoli.....	.....	.....	.....	.....	Onions.....	.....	.....	.....	.....
Brussels Sprouts.....	.....	.....	.....	.....	Pickling.....	.....	.....	.....	.....
Cabbage.....	.....	.....	.....	.....	Parsley.....	.....	.....	.....	.....
Cauliflower.....	.....	.....	.....	.....	Peas.....	.....	.....	.....	.....
Celery.....	.....	.....	.....	.....	Potatoes.....	.....	.....	.....	.....
Coleworts.....	.....	.....	.....	.....	Radishes.....	.....	.....	.....	.....
Cress.....	.....	.....	.....	.....	Rhubarb.....	.....	.....	.....	.....
Endive.....	.....	.....	.....	.....	Sage.....	.....	.....	.....	.....
Fennel.....	.....	.....	.....	.....	Shallots.....	.....	.....	.....	.....
Garlic.....	.....	.....	.....	.....	Spinach.....	.....	.....	.....	.....
Herbs.....	.....	.....	.....	.....	Tomatoes.....	.....	.....	.....	.....
Horseradish.....	.....	.....	.....	.....	Turnips.....	.....	.....	.....	.....
	.....	.....	.....	.....	Vegetable Marrows.....	.....	.....	.....	.....

## WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 12—18, 1870.	Average Temperature near London.			Rain in last 43 years.	Sun Rises.		Sun Sets.	Moon Rises.		Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.		
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.			
12	Th	Meeting of Royal and Zoological Societies, [8.30 P.M.] 4 SUNDAY AFTER EASTER.	62.9	49.5	51.7	20	15	44	38	47	51	49	21	43	12	3 52	132
13	F		63.5	38.8	51.1	20	14	4	39	7	15	5	45	3	13	3 53	133
14	S		69.2	40.5	51.7	16	12	4	41	7	42	6	11	4	14	3 53	134
15	SUN		64.8	46.7	52.7	15	11	4	42	7	8	39	4	3	15	3 53	135
16	M		66.0	43.3	54.1	15	10	4	44	7	28	9	15	5	16	3 53	136
17	Tu	Royal Horticultural Society, Fruit, Floral, (and General Meeting.	65.7	41.0	53.4	16	8	4	45	7	40	10	57	5	17	3 52	137
18	W		66.2	42.2	54.2	17	6	4	47	7	39	11	49	6	18	3 50	138

From observations taken near London during the last forty-three years, the average day temperature of the week is 64°; and its night temperature 41.0°. The greatest heat was 83°, on the 15th, 1833; and the lowest cold 25°, on the 15th, 1850. The greatest fall of rain was 1.14 inch.

CULTURE OF THE JAPANESE YAM  
(DIOSCOREA BATATAS).

**T**HE great expectations which were entertained when the Japanese Yam was introduced into this country have never been realised. It was said to possess such fine qualities as to make it a desirable substitute for the Potato, which was at that time (1852), threatened with annihilation from the disease; but I have never heard that even under the best system of cultivation its flavour approached that of a good Potato, nor has it been found sufficiently productive to make it a profitable vegetable for general cultivation. Another obstacle to its progress may be, that when compared to the Potato, its cultivation is much more difficult, from its tubers striking so deeply into the soil. It is, however, grown in many gardens, and is useful to serve up as an extra dish, or when other vegetables are scarce. I know of some places where its cultivation has increased owing to the family being fond of it. Those who like it may cultivate it in the following manner.

Select a warm border under a wall, where there is a deep, rich, and not very light soil, and in order to obtain a sufficient depth of earth for the tubers, throw up beds of soil 4 feet wide, 3 feet apart, and about 18 inches above the ground level: draw two drills, as for Peas, down the centre of each bed, and plant the sets, which are cut from the small end of the tubers, at 1 foot apart. Before covering over, a dusting of lime and soot should be given to prevent the attacks of grubs on the wounded parts. When the shoots make their appearance above the ground, which will not be for some time after planting, give a plentiful supply of water, also at all times during growth if the weather is dry. The finest tubers I ever grew were from sets planted in May; they were not taken up for use until November in the following year. Fair-sized tubers may, however, be grown in one season if early planting has been adopted, but I should consider these as suitable plants for the production of large tubers under the first-named plan of culture, rather than for affording tubers for eating.

At the time of digging up, which is November, the soil must be carefully thrown down, and the tubers extracted, if possible without a bruise, and stored in finely sifted dry soil, and upon the ground floor, which will be damp enough to keep them from shrivelling.

In preparing the tubers for table, they should be pared and boiled in salt and water in the same way as, but about five minutes longer than, Potatoes; to make them whiter half milk may be added, but it is not absolutely necessary. They may then be finished off by steaming, and served up as hot as possible.—THOMAS RECORD, *Lillesden*.

## NEW CHRYSANTHEMUMS.

As this is the proper time for buying in, I will jot down a few notes on the Chrysanthemums of the past year which I have myself grown, and of which, therefore, I speak, not as one who has merely taken cursory notes of them, but

as one who has had them under his eye daily for the whole time of their blooming.

Again I have to notice the decline in the taste for Pom-pous; it is one of those matters "which no fellow can understand," for a time they seemed to carry all before them, but then a sudden stop came to this, and the introduction of the Japanese varieties, opening up an entirely different field, has tended to make this more complete. No new seedlings have been raised, the novelties being confined to the large-flowering, or Chinese, and Japanese Chrysanthemums.

## JAPANESE.

*Dr. Masters*.—A very showy variety, with large flowers, the outside florets being of a bright red, and the centre changing to the same colour. Very double, and altogether one of the most desirable varieties of last year.

*Hero of Maydale*.—Red, the reverse of florets buff; they turn about in a very curious manner. The two colours give a very remarkable appearance to this flower, and when it first opens it would be impossible to recognise it from the description.

*James Salter*.—Without doubt one of the most remarkable flowers in this section: clear lilac, very large and double. It blooms early, and is of good dwarf habit, continuing in flower for a long time.

*Meteor*.—A curious flower, with long narrow florets of a bright golden hue, changing to orange, and curiously twisted.

*Morgiana*.—Bright red, with the reverse yellow. The appearance of the flower is that of a long tassel.

*Regalia*.—Orange, striped with bright red, the florets very broad and incurved. Very showy.

*Star*.—Large orange florets, very long and broad. A very curious flower.

*Purpureum album*.—Rich purple, mottled with white; flowers of medium size, having the appearance of a loose tassel of purple and white.

Amongst those highly spoken of for this season are *Sol*, clear yellow; *Sultan*, very large, purple; *Viceroy* of *Soi*, resy crimson and white; *Emperor* of *China*, rosy white; and *Colonel Hemery*, large, semi-globular yellow. Opinions will still be divided as to the merits of these flowers; but while they are inferior in form and contour to the Chinese varieties, they are, from their singularity of appearance and late period of blooming, very good for decorative purposes.

## CHINESE.

*Beethoven*.—Orange red, with slight golden tips, the florets very broad, and the flowers finely incurved; very double, and the plant of good dwarf habit.

*Golden John Salter*.—A sport from that fine old flower *John Salter*. Golden yellow, changing to light orange.

*Pink Perfection*.—A beautiful shade of colour: soft pink, a most delicate colour. The flowers are large, composed of broad incurved florets; we have had no flower in this colour before.

*Rival Little Harry*.—Dark yellow. A seedling from that fine flower *Little Harry*, and of the same beautiful dwarf habit.

*Stellaris*.—Amber, with a distinct yellow tip. The flowers are cone-shaped, and new in colour.

*Penipo*.—Rosy purple; very double, close, and large.

*White Eye*.—Pure white; exquisite form, and wax-like appearance.

Of the new flowers in this section, the following have been well spoken of:—Beauty of Stoke, yellow, shaded with amber; Duke of Edinburgh, rosy lilac, with light centre; Globosum, dark Indian red; Miss Hope, delicate lilac; Mrs. Wreford Major, deep rose, very close and compact; Princess Louise, delicate rosy lilac; and Virginala, a dwarf late-flowering variety.—D., Deal.

## REPORTING PROGRESS IN NORTH DORSET.

My horticultural and floricultural knowledge is so limited that I must ask leave to report progress generally, as the parliamentarians do when they are brought to a "fix." My floricultural knowledge is entirely limited to Roses; with them I will begin and end.

The Rose plants have suffered much here from orange fungus and violent winds last summer injuring the foliage, and, therefore, sickening the plants. I have cut out a forest of injured wood, but enough is left, and on the whole the plants look well, and many are in forward bud, wanting only warm nights and genial days. None here look better than the plants of Jules Margottin and Charles Leschere, the two leaders of the Hybrid Perpetuals.

Of new Roses I can say but little. I have them forward in bud in pots in my little vinery. The first I name, I think will be a first-class Rose—Marquise de Mortmart. As soon as it is unfolded I shall be able to speak more confidently. The following also appear to promise well—Charles Lee, Spavenir de M. Poiteau, and Edouard Moreau. Souvenir de M. Poiteau is of first-rate growth and habit. Marie Sisley and Monplaisir, two Tea Roses, are not forward enough to enable me to form an opinion. I expect to find Marie Sisley an improved Homer, and very superior. I have ordered Princess Christian and Prince Leopold, the climber. The picture of the former is tempting.

Look over your south wall trees, and kill all the aphides you can now, and you will save yourselves from much summer annoyance. They commence in hot situations.

Now for horticulture. Apples will be a grand crop, as the blooms are very late. Pears are wonderfully bloomed, and I hope may succeed. Cherries are set, and most abundant, and I hope they may not be injured. On Monday night (May 2nd) we had a severe frost and ice, but as yet I see no damage. Plums are well set; but, as I can only give them a west aspect, they may fail. Currants and Gooseberries are plentiful. Strawberry plants are well crowned, and look like clumps of Firs. They will bloom late, and be safe from frost. Rivers' Eliza, and Dr. Hogg, which is the finest of the Queen race, have wintered best. These also have wintered well—Mr. Radcliffe, Lucas, Cockscumb, and Wonderful. Royalty, Duke of Edinburgh, and Early Prolific, have wintered well, considering they were planted so late in the autumn. I shall have enough fruit to test them.

I now come to what interest me much—namely, Peach and Nectarine trees. Of these I have about 103. Their blooming was grand, and they have set well on the whole. Some of the trees are wonderfully set. I am a short, alternate, irregular pruner, and I think I could please M. Grin, as some of my trees are main branches, and "bouquets de Mai." Long-pruning out of doors in exposed places in our variable climate, will ultimately bring a tree to grief. It is easier to ripen three shoots each 4 inches long, than a shoot of 12 or 14 inches. Moreover, it is better to have three shoots of 4 inches in length, with one Peach on each, than a 12-inch shoot with three Peaches on it. When the shoots are short, the Peach is nearer the main flow of sap, and sun, air, and light have a better chance of ripening the wood, upon which the success of the next year's crop much depends. For two years I have cut all the leaves in half in September, which caused the leaves to drop earlier, and gave me hardened blood red wood, instead of soft, sickly, pale green shoots. I have not on 103 trees a single blistered leaf. I attribute this to my using sheets, and to giving water at the roots even when the nights were cold, to supply sap equal to the evaporation occasioned by the drying easterly wind and sun. Frost on the young leaves, accompanied by extreme evaporation, is, in my opinion, the main cause of blister. There cannot be a more severe situation than that of

my garden. It is as open to the east and south-west winds as the Eddystone lighthouse, with only a 7-foot brick wall to keep back fourteen miles of north wind blowing over the fine vale of Blackmoor.—W. F. RADCLIFFE.

P.S.—The Marquise de Mortmart has since unfolded two most beautiful blooms. It is a silvery white with a delicate bluish centre. It is in the line of Daroonese de Rothschild, but fuller in the centre. It is of fine outline, with petals well disposed, and completely full. It is a great success, and I thank the raiser—Liaband.—W. F. R.

## NOTES ON PELARGONIUMS, ROSES, AND POTATOES.

You invite amateurs to give from time to time the results of their experiments in the garden; I therefore send two or three notes which may be interesting.

Last summer I bedded out a great variety of Pelargoniums, with the view of finding out what would best suit my soil—a deep strong loam. Mr. Pesch, in your number of April 28th, cries down Dr. Lindley. I had such a magnificent bed of this last year, that I have worked up a large stock for the coming season. With me it was the first out, and the last to give up. I had nothing to equal it for show in any class. Stella and Cybister gave me the next best show. Orange Nosegay came on better towards the end of the season. Wiltshire Lass did much better as a pink than Christine.

I had single plants of Seraph, Sambo, Christine Nosegay, Rose Stella, and Hon. G. Hardy, which promised well. I shall try them in greater numbers this year. Among the Tricolors, Lady Cullum best everything. So much for Pelargoniums.

Roses were a great success with me. Marcelle Niel, as a standard, astonished all who saw it. David Pradel, Souvenir d'un Ami, Monplaisir, and Madame Charles, among Tea Roses, were my best. Alfred Colomb and Victor Verdier were uncommonly good last year. Out of fifty Tea Roses I have lost but three plants—namely, two of Madame Falcot, and one (my only one) of Banton d'Or.

I have been having a Potato "Darby." I planted one pound of each of the following sorts—Early Rose, Climax, Bresee's Prolific, Bresee's King of the Earlies, Royal Ashleaf, Suttons' Racehorse, England's Glory, and Kelway's Nonpareil. They were set side by side in rows in new rich ground. Early Rose and Kelway's Nonpareil were "neck and neck," and easily first; yesterday they were strong and healthy, but last night's frost (May 2nd) has laid them low; they are as black as a coal. I was anxious to weigh the result of the trial, but now the first will, I fear, be lost. Early Rose was first-rate with me last year, an immense crop. I think, however, that people make a mistake about it, and dig it up too soon. It is soon up, but ripens slowly. I have twenty-five different kinds of Potatoes planted this year, and shall, if you will permit me, let you know the result.—STIFF SOIL.

[Your reports, and all like them, are very acceptable.—Eds.]

## ALPINE AURICULAS—ROCKERIES.

I AM glad to see a few remarks about the Auricula in "our Journal." I was beginning to think in these "bedding-out" times that it was a plant almost forgotten, and yet so beautiful—so very beautiful! I shall never forget the first frameful of the show varieties that I saw; it was more than thirty-five years ago, and in my mind's eye I can see them now as plainly as I could then. But what I was about to observe is, that though the Alpine Auricula is so hardy, so lovely, and of such variety of colour, one scarcely ever sees it made use of for the decoration of rockeries. In fact, I have seen shown many which abound with Sedums, Saxifrage, and other plants of that description, but never any Alpine Auricula. This to me is extraordinary, as it is one of the few flowers in which one can have nearly a blue and also a bright yellow; then there are the varieties of lake, brown, carmine, and purple, almost black—I never saw a white—and the foliage, too, when off the blooming season is of so varied a character as to render the plant even then very ornamental. At this moment I have about a hundred in bloom on my rocks, and no two alike in colour or habit. I am delighted with them, and so are my visitors, who generally say, "Dear me! I had no idea they were half so varied or so beautiful." I suppose if they "bedded-out well" we should hear and see more of them.

Many of my Alpine Auriculas I have raised from seed, and

I am now crossing the colours with the view of raising some fresh kinds, as I have an idea I should like to grow a thousand about my rocks; and then, what with the Primroses, the Polyanthuses, the Sedums, Saxifrages, dwarf Phloxes, &c., I think my neighbours will have a treat in the floral way when they come to see me early in the spring.

I trust that my brother amateurs will excuse my drawing their attention to the Alpine Auricula as a rockwork decorative plant, and one far superior, to my thinking, to most of those now employed for the purpose. I hope I have not written too much in its favour, but it is such a pleasing subject to me that I wish to make converts, not only to grow it, but to show their friends what lovely flowers may be produced with scarcely any trouble to themselves.

While writing about rockeries I think I may mention as one of the things not generally known, that *Echeveria secunda* is hardy; it stood well here on my rocks 20" of frost, becoming a beautiful scarlet colour, and is now growing vigorously. I notice this, as I generally see it put away into cold pits for the winter. *Opuntia Rafinesquina* has not stood well, though alive, but I shall turn out some more plants and try it, as it is so distinct from any other hardy plant, and perhaps the soil did not quite suit it. By the way, will anyone tell me where to get the old double clear yellow Auricula? I have been searching for it for years. I remember the flowers were large and bright, and the foliage was nearly white farina-like. Now-a-days the catalogues would describe it, I suppose, as "*Auricula flore-pleno aureo, folio farinoso*," splendid for rockwork.—HARRISON WEIR, *Weirleigh, Kent*.

#### DETERMINING THE SIZE OF FLOWER POTS.

I HAVE some thoughts of being an exhibitor at a provincial flower show, in certain classes, in which the schedule states that the size of the pots must not exceed 10 and 14 inches respectively. I have lately had an opportunity of discussing with several regular exhibitors what was the proper way of measuring, but we could come to no definite conclusion on the subject, some asserting that the proper way was to measure from outside to inside at the top of the rim, and others that it was to measure inside only, at the top of the rim. I am told by no less an authority than Mr. W. Paul, that the rule observed at the London shows, is to measure inside, 1 inch below the top of the rim. Now, this appears to me to be the most correct method, as it gives nearer than any other the dimensions of the soil the plant has to grow in. As this is a subject of very great importance both to exhibitors and judges, and as all, I am sure, are desirous to avoid contention in the matter, will the Editors give us their views, and lay down a rule for our guidance? Of course, none would be so narrow-minded as to dispute in a matter of half an inch, as it is impossible in any given cast (or dozen), as the potters in this neighbourhood call it, to get the pots of exactly one measurement.—ROBT. FEATHERSTONE, *The Garden, St. Ann's Villa, Bury, Leeds*.

[We quite coincide with Mr. W. Paul. The intention of limiting the sizes of the pots for plants exhibited, is to insure as nearly as may be, that they shall not be grown in soil above a certain quantity, and this can only be done by measuring at an assigned point inside, or in the clear, as it is technically termed. No better point of measurement could be fixed upon than at one inch below the extreme edge.—Eps.]

#### FRUIT PROSPECTS.

ALTHOUGH the weather has for some time been very cold, the atmosphere has been tolerably free from moisture, and most kinds of stone fruit have set abundantly. Apples and Pears are flowering profusely, especially the latter, and setting their fruit very thickly; but in the case of root-pruned trees some good showers are wanted, otherwise the principal portion of the fruit will drop off, and the same with Cherries.

We have lately had several hoar frosts, especially on Wednesday morning (May 4th), when the thermometer registered 25° Fahr. or 7° of frost, which I see by the Journal was not so severe by 5° as at Chiswick; nevertheless, much of the fruit blossom is injured, also some of the small fruit is discoloured. The foliage of Peach, Nectarine, Apricot, and other trees has turned brown, and is curling in consequence. Mildew is also making its appearance on the injured foliage, but the weather is so favourable for the application of powdered sulphur that I hope to check its progress. As regards Filberts, early in the

season I think I never saw the trees more promising for a crop, there being such an abundance of both male and female blossoms; but the sharp frosts and cutting north-east winds that prevailed from the 10th to the 15th of February destroyed most of the former before the latter were fertilised. On looking over my trees to-day (May 6th), I find there is a good crop set on some of the trees, and most of them have set some fruit, but the maggot, so destructive to this crop, is already on the trees in quantities. I find as many as three and four in different stages of development at the extremities of many of the shoots; and I conclude that now is the time to go over the trees and kill the insects before they can secure a lodging in the embryo nut. Potatoes in many gardens are killed to the ground.—THOMAS RECORD, *Lillesden*.

EVERYTHING in this district (Redruth, Cornwall), is very backward owing to the absence of rain, but there is every probability of a fine crop of wall fruit, especially Plums and Peaches. The Gooseberries and Strawberries are looking very well, and I have some of the former fit to pick.—ALPHA.

#### FLOWERS AND FLOWER SHOWS.

ABSENCE from home has prevented my seeing Mr. W. Paul's remarks (page 220) on "Flowers and Flower Shows" until this week. After reading the article in question, and seeing "W. Paul, *Waltham Cross*," attached to it, I could scarcely believe that the author of the "Rose Garden" (which work I was an original subscriber to, and at that time a great admirer of), could by any possibility so have changed his views as to have penned such notions. I consider the article is an insult to all honest exhibitors, and calls forth an indignant reply from all. I am pleased that some leading members of the trade have freely spoken, and trust other amateurs besides myself will not be backward.

Mr. W. Paul says, "The Dahlia is made up of two or more flowers, and dressed with all the skill of an accomplished milliner." Now, having been a successful grower and exhibitor of this flower for the last twenty-five years, and having of late years occupied the highest post at the Crystal Palace and other great shows, I positively deny that any bloom exhibited by me has either been made up or dressed, for the flowers have been shown just as they were cut from the plants. In my experience I never saw one Dahlia made up of two or three, nor do I think it possible to be done.

Again, Mr. William Paul says, "Dressing is now carried further than ever." This I do not believe, and my experience as judge at nearly all the principal shows in the kingdom during the last ten years confirms me in this belief. Florists' flowers are so much more perfect now than formerly, and the culture of them so much better understood, that there is no need of artificial treatment. Who could desire a flower more perfect than a well-grown Dahlia or Rose? yet Mr. W. Paul talks of dressing the Rose. Last year four silver cups and thirteen first prizes for cut Roses fell to my lot, but no bloom among them was ever touched by dresser, nor in any of the collections that came under my notice as judge at all the great shows of the year did I discover one made-up or dressed flower.

I am in no way surprised that Mr. W. Paul finds out that exhibiting does not bring the trade that it formerly did. Any nurseryman who falls from to discover that fact. I have known I fancy, will not be long to discover that fact. I have known Mr. W. Paul show Hollyhocks well. Were the plants from which they were cut ever disbudbed or thinned to cause them to produce fine blossoms? Are Peach, Pear, and Plum trees deprived of a portion of their fruit to increase the size of those remaining? Are Grapes left to thinned, and small bunches with puny berries preferred to large bunches with luscious berries the size of Plums? If Mr. W. Paul's reasoning is correct, such will soon be the case. Does Mr. W. Paul suppose that country gentlemen are so devoid of common sense as to think that a Rose, Pelargonium, or any other plant placed in a garden and neglected, will produce flowers equal to those brought to flower shows, which have been produced by the highest cultivation? or does he imagine, or wish others to do so, that horses, sheep, or cattle, turned out to take care of themselves, would be as handsome and sleek as those shown at exhibitions? Visitors go to agricultural and horticultural meetings to see the perfection certain flowers, fruits, &c., can be brought to; not to see everyday market stuff, but to learn what cultivation will do. Mr. W. Paul may depend upon it "cultivation" is the grand

secret, not "dressing," "millinery," "handing," and so forth. When Mr. W. Paul next contributes to your columns perhaps he will give facts, and when he accuses honest men as a body of misdeeds, let him hold up to public odium by name those he knows to be guilty. By such means he will do a lasting service to the cause he wishes to enhance.—CHAS. JAS. FERRY, *The Cedars, Castle Bromwich.*

### SHRUBS FOR THE SEACOAST.

I LIVE near the North Foreland Lighthouse and at about the same elevation, on one of the most exposed spots in the Isle of Thanet. Having planted this place in 1862 and had charge of it ever since, I will name some shrubs that do well with me. These are—Evergreen Oak, *Laurustinus*, *Eucynarus*, *Bays*, *Phillyrea obliqua*, *Berberis dulcis*, *B. Darwinii*, and *B. purpurea*, *Buddleia globosa*, and *Portugal Laurels*. Of the *Coniferae*—*Copressus macrocarpa*, *Pinus austriaca*, *Biota aurea* (this plant assumes a golden hue for about three months in summer), the common *Yew*, and *Wellingtonia gigantea*. There are others that would do well with shelter from the sea. Of deciduous trees and shrubs almost anything will do. *Sycamore* and *Poplar*, and the *Naples Alder*, are good forest trees.

I do not mean to imply that all these do as well as a little farther inland, but considering the fine sea view we have my employers are well satisfied with their growth. Last winter being almost unprecedented, we are very much scorched.—R. S.

### DECORATIONS OF GRAVES.

In your number for April 7th you mention an instance of the grave of an officer of the 48th regiment having a Laurel planted over it, because the Duke of Wellington ordered him to place a sprig of Laurel in his cap for distinguished conduct at the passage of the Duro. Now, all the root-pruning in the world cannot keep the common Laurel in bounds; and even if it could, the grave would periodically have to be disturbed for this process; hard winters would kill it to the ground, as were my Laurels in Essex in 1860, some of them at least 20 feet high; and at other times they are almost destroyed by mice (and there are "church mice") eating the bark. May I venture to suggest an improvement, and enclose a sprig of what I have always known under the name (and no other) of "Victory Laurel," as perfectly appropriate for the occasion? I cannot find out its proper Latin name, but have understood that it is the same plant with which the ancient Romans were crowned. It is perfectly hardy, always rather dwarf—in fact I never saw it over 3 feet in height, and its elegant foliage is generally as bright and shining as would be the "memories" of the happy victors whose graves it might adorn. The enclosed piece has just been cut out of a bouquet, and has been in water for more than a month.—CENTURION.

[The plant of which you enclosed a branch is *Ruscus racematus*, commonly called the Alexandrian Laurel. It would be very suitable for the purpose of grave decoration.—EDS.]

### MESSRS. VEITCH'S, ROYAL EXOTIC NURSERY, CHELSEA.

IF ever there was a time when this great establishment was better worthy of a visit than at another it is now, for there a most superb collection of Roses is in the height of its beauty, and there magnificent specimens of Azaleas—such Azaleas as in bygone years only the foremost growers ventured to try their strength against, such Azaleas as we have looked for in vain this season, and are not likely to see elsewhere—produce one of the most splendid floral displays we have ever witnessed. These are the most striking features at present; but the unrivalled collection of Orchids, the Palms, the Ferns, and other fine-foliated and flowering plants, though for the time being outshone by their more brilliant rivals, are as well represented as at other times. To do full justice to them all, however, would require several reports, and they must therefore receive less particular notice than the two flowers which for the present constitute the most important of many attractions.

And first the Roses, for the Queen of Flowers should have the first place here, as she does at Chelsea, occupying there the house usually filled with Orchids in flower, and forming in it an exhibition of herself. That this is one of the most splendid character may be inferred from the remarks in page

320 on the collection shown by Messrs. Veitch last week at Kensington, and such as it was then such is that shown now. Duke of Edinburgh, *Sénateur Vaisse*, *Madame Furtado*, *Madame la Baronne de Rothschild*, *Paul Verdier*, *Victor Verdier*, *Général Jacqueminot*, *Dr. Andry*, and *Madame Willermoes* are but a few of the many to be seen in great perfection, besides which, in addition to *Madame la Baronne de Rothschild*, a really fine acquisition, there are several other new varieties in excellent bloom.

In a continuation of the house in which are the Roses, and forming a cross piece to it, is another house filled with Palms, Azaleas, Heaths, Pelargoniums, Fuchsias, and various other plants in flower.

Proceeding now to the Fulham Road side of the nursery we come to the show Azalea house, which is filled with specimens about 6 feet high, from 4 to 5 feet in diameter, and forming gorgeous masses of colour—white, rose, deeping into crimson and purple—on each side of the walk. *Stella*, a variety sent out by Messrs. Veitch, scarlet, with a rich violet blotch, occupies a position facing the entrance, and is well worthy of its place, being a splendid specimen 4 feet in diameter. Then along each side are *Petuniadora*; *Comte d'Hainaut*, semi-double rose; *Queen Victoria*, white, flaked with rosy purple; *Coccinea*; *Belle Gantoise*; *Carnea superba*, very fine specimen; *Iveryana*; *Duc de Nassau*; *Criterion*; *Magnificent*, white, about 5 feet in diameter; *Roi Leopold*, salmon, very soft in colour, and a mass of blossom; *Juliana*, *Cedo Nulli*, and *Madame Ambroise Verschaffelt*. As an edging to these on each side were smaller plants of Azaleas alternating with *Spiraea japonica*.

The Camellia house, which forms the Fulham Road entrance, a fine house 100 feet by 30, of an architectural character, only built last year by the late Mr. James Veitch, and opposite the entrance to the Cemetery where he now rests, also contains a number of fine specimens of the varieties just named, *Sir C. Napier*, *Reine des Roses*, *Prinz Franz Joseph*, salmon rose with crimson spots, very fine, and others. The Camellias, of course now out of flower, are, however, the main object here, and large and most flourishing specimens they are, some being planted out in the borders, others trained against the walls. The soil in which they are growing is 2½ feet deep of peat, loam, and sand, in the proportion of two parts of the first to one of each of the latter two. Of the Double White there are several fine plants, and among the other kinds *Masthoiana*, *Leopold list*, *Fimbriata*, *Florida*, *Triomphe de Lodi*, *Imbricata*, *Bonomians alba*, one of the finest of the whites, *Madame Lebois*, *Lavinia Maggi*, and *Marchioness of Exeter*. On one of the rafters of this house was the beautiful double Clematis *John Gould Veitch*, and the other rafters will in course of time be likewise covered with climbers. Just outside of the Camellia house are placed two of the largest and finest-formed standard Bays anywhere to be seen, one on each side of the entrance from the nursery side. These are 15 feet high, 8 feet in diameter, and perfectly furnished throughout.

Returning now to the King's Road entrance, and passing to the left of the show conservatory, the first house entered is principally devoted to Aloes, Agaves, and Yuccas. Among them are a splendid pair of *Agave filifera*, a pair of the Variegated New Zealand Fan, upwards of 5 feet high, *Yucca quadricolor*, *Agave Verschaffelti*, *A. Ousselghemiana*, and other distinct and rare kinds.

The next house is the greenhouse fernery, which contains some of the finest specimens in the whole nursery, and particularly beautiful are those of the Filmy Ferns, of which *Leptopteris Wilkinsonii* is one of the most remarkable. *Leptopteris superba* growing in beds of peat, sphagnum, and crocks is most flourishing, even though too large to be covered by hand or bell glasses; and among others may be noted *Hymenophyllum demissum*, and *Trichomanes reniforme*, of which there is a fine pair. A number of other Ferns are growing on the stumps of old tree Ferns scooped out to receive them, in which way they have a very good effect.

The stove fernery is the next house entered, and contains some specimens even more remarkable than those just noticed. Among them, conspicuous by their great size and beauty, are two magnificent plants of the lovely light green *Adiantum farleyense*, between 4 and 5 feet in diameter, and fine specimens of *Adiantum concinnum latum* and *Adiantum tenerum*, two beautiful Maiden-hair Ferns; also *Leptopteris superba*, even larger than in the greenhouse fernery. Other remarkable Ferns are the rare *Trichomanes anceps*, an unsused golden *Gymnogramma* with the under sides of the fronds densely covered

with a powder of the richest yellow, and a noble plant of *Cibotium princeps*.

On quitting the stove fernery we pass into the hardy fernery, a most charming piece of rockwork, delightful by its coolness and the beautiful tints of green which prevail; relieved, however, by the variegation of *Fartagium grande*, *Selaginella Martensii variegata*, and other plants giving diversity of hue, and further, from one end a glimpse is gained of the bright-coloured *Cattleyas* and other *Orchids* in the next house.

In this house there is a fine bank of *Cattleyas* and other *Orchids* in flower, such as *Oncidium sarcodes* and *Marshallianum*, *Vanda cristata*, *Dendrobium Daltoussianum*, &c. In a continuation of the same house were *Cypripedium esculentum*, with two fine flowers, and the beautiful *Cattleya Downiana*, besides a large stock of plants not in flower. The next house is filled with *Dendrobiums*, *Arides*, *Cattleyas*, and *Vandas*; the *Foxbrugh Arides*, *Vanda gigantea*, and some others being in flower; and in the *Vanda* house adjoining, Veitch's variety of *Vanda suavis* was in fine bloom. The East Indian house contained fine specimens of various *Dendrobiums*, notably *D. MacCarthiae* and *crassinode*, the latter of which has recently been exhibited by Messrs. Veitch in such beautiful bloom, attracting much attention, not only on that account, but by its singular knotted stems. *Cypripedium levigatum*, *Oncidium Krameri*, and the well-known *C. Papilio*, were also fine. The *Cypripedium* house comes next; in this we noticed *C. Harrisianum*, one of Mr. Dominy's hybrids, raised by him between *C. barbatum* and *C. villosum*, and a very beautiful variety, *Trichopilia crispata* will also be shortly in fine bloom, having five flowers opening up in it now. In the next three houses, *Olontoglossum aureum*, *O. cordatum*, *O. hystrix*, the old but pretty *Epidendrum Stamfordianum*, the beautiful *Masdevallia Veitchii*, one of the most brilliant *Orchids* ever introduced, *Olontoglossum Cervantesii*, and several *Lycastes* are in bloom. But there are yet other houses containing *Orchids* even more beautiful than those already named, and which, with numerous other subjects, must be left to a second notice.

(To be continued.)

## ILLUSTRATIONS OF BOTANY.

*Johnson's Illustrations of Botany. Sheet 1. Organs of Plants. Tissues, Root, Stem. Edinburgh and London: W. & A. K. Johnston.*

THESE are original drawings selected by Professor Balfour, of Edinburgh, and executed in chromo-lithography by Messrs. W. and A. K. Johnston, on a large sheet, roller-mounted. The sheet is accompanied by a handbook explanatory of the various figures, also by Professor Balfour. At this time, when strenuous efforts are being made to introduce to primary schools instruction in Natural Science, the publication of this sheet is most opportune, and we welcome it as being produced under the direction of one who is eminently qualified for such a work by a long period of class tuition in one of the largest-attended botanical classes of perhaps any existing university. Those who have had the privilege of attending Dr. Balfour's lectures, and listened to them with the earnestness of students imbued with a love of the science, cannot but have been impressed with the clearness and minuteness with which he unfolded his subject, leading up from the simple cell to the perfect plant development. The same clearness and minuteness has Dr. Balfour transferred to this sheet of illustrations, so that the most ignorant of learners can, if he is so minded, acquire a knowledge of elementary botany with an ease which older botanists in their youth would have greatly coveted. The leading figure on the sheet is that of an ideal plant, representing all the external organs from the root and its fibres to the matured seed. Then there are no less than thirty-five other figures of large dimensions, chiefly of the internal organs, so drawn as to leave no doubt as to the structure of these organs, and enabling the student to comprehend at a glance the various parts of which a plant is built up. We commend this sheet as a valuable acquisition to the attainment of a sound knowledge of elementary botany.

## GARDENERS' ASSISTANTS.—No. 3.

POOLEY'S TOBACCO POWDER.

THIS is an article which has only recently come into general notice, but having proved so exceedingly useful, it already seems as if it would be impossible to get on without it or some similar article. Tobacco powder or tobacco snuff has long been known

as very efficacious for the destruction of all sorts of aphids; the price, however, precluded its general use. In some places, also, it was customary to grow a few plants of the common tobacco, and to dry the leaves and grind them into powder. This, however, necessitated a good deal of labour, and was very often forgotten until the tobacco was actually wanted. For many years I have been in the habit of growing and using the dry powdered leaves of the tobacco in this way. Now, however, as the powder is supplied so plentifully and so cheaply, I have given over the cultivation of the plant.

For the destruction of green fly, &c., on Peach trees on the open wall the tobacco powder is all that is necessary; and in every case where tobacco smoke cannot be used the powder is the next best remedy, and its effects are equally certain if it is applied properly. After syringing the trees is the time to use it, and the best mode of doing so is simply with a common penny pepper-box to dust the powder all over the insects, and indeed every part of the tree. The leaves, &c., being wet, the powder adheres, its bitter acrid taste is brought out, and the insects effectually destroyed. By dusting the powder over every part the insects find no food suitable for their taste; but if this is not done many of them leave the powdered part and proceed to fresh fields. In the orchard house, if a tree happens to become infested with aphids five minutes will suffice to dust it all over. It is thus exceedingly handy for cleansing any little plant which may be infested, without going to the expense of fumigating the entire house. On the open wall, if the powder is applied while the dew is yet on the trees the powder will adhere, and require no further attention until it and the dead insects are washed off with the syringe. With trees under glass, however, the leaves, &c., have to be gently damped over once or twice to make it have the proper effect, and then about the end of the second day the trees should be freely syringed and made again clean. It is the cheapest and best article that can be used for the destruction of all sorts of aphids, the green and the black fly, on Peach and other trees.—ARCHAMBAUD.

## WELLINGTONIAS IN CALIFORNIA.

AFTER riding about five miles, our guide inquired if we noticed anything strange in the appearance of the forest, when suddenly our attention was attracted to the tall spires of the Sequoia, extending far above the surrounding vegetation, and soon we were riding amidst immense specimens of this lordly tree. This collection of Wellingtonias, or Washingtonias, is known as the "Mariposa Group," and embraced in former times 612 trees, but owing to occasional accidents the number has been reduced to about six hundred. The collection is divided into two well-defined groups, with a few scattering trees of this species between, and are entitled the Lower Grove and the Upper Grove, respectively. Among the very many erroneous statements published in regard to these trees, is that there are no young plants coming on to perpetuate the species. I may say in refuting this absurd theory, that I saw large quantities of seedlings, of every conceivable size, and that they appeared in as flourishing a condition as any Conifer in the whole range of the Sierra Nevada. After passing several immense specimens, we stop at the Fallen Monarch, a trunk lying on the ground, and possibly uprooted many years ago. We clamber up on the top, and standing on what was its base, measure with our tape line to the ground, 22 feet. We then step along its length 150 feet, and at this point the first branch was placed. Beyond this the many fires ignited by Indians have burned the entire top, but evidence is shown by numerous remains that it was over 300 feet high. At the smaller end of the trunk the diameter was 10 feet, and the wood throughout solid and undecayed.

To give an idea of its immense size, I may say that the surface is worn level, and a carriage can readily be driven its entire length, turned at the base and return with ease. One of the smallest trees in this Lower Grove, measured 17 feet in diameter, 5 feet from the ground. A large one close by was 50 feet round; and numbers of others in the near vicinity quite as large.

I ride my mule inside a hollow tree, turn round with ease, and out again to wonder at its immensity. Leaving this Lower Grove with its enormous specimens in every direction unmeasured, we pass on and take the mountain trail towards the Upper Grove. Midway we stop at the greatest wonder to be seen—the Grizzly Giant. It is truly marvellous in size. We step carefully round the base, and count just 31 paces. Measured as high as we could possibly reach by standing on the projecting base, 12 feet above the ground, it was 66½ feet in circumference; 60 feet high the

first limb branches out, and is 10 feet in diameter. This tree is supposed to be entirely solid, with the exception of two or three spots burned out of its sides by camp fires. There are others here as large as the above, but none with such a majestic appearance as this grand old veteran presents. Passing by another large specimen measuring 77 feet around, with a few smaller ones near at hand, we soon arrived at the Upper Grove. This embraces about 365 trees, in the midst of which is built a cozy little cabin called *Galen's Hospice*, where the weary traveller can sit down and rest while viewing these astonishing vegetable growths. On the outer edge of this Grove we notice the *Diamond Group*, consisting of four large and very handsomely shaped trees. We now step round the base of a number of trunks with the following results:—84 feet, 69 feet, 73 feet, &c. Two immense trees stand close together, one of which is entirely hollow, in fact a mere shell, in which sixteen horses with their mounted riders have stood at one time. We next come to the Tunnel, a prostrate trunk hollowed out by fire, and which is 42 feet in length; through it we walk erect from end to end. Ten thrifty and very handsome trees stand in a cluster, and are named the *Commissioners*. They are from 4 to 8 feet in diameter, respectively. The *Chimney* is a hollow stump 50 feet high, burned out through the centre to the top, and is 32 paces round. An old charred stump lying on the ground, was without the bark 27 feet in diameter. A curious tree of immense size forks into two distinct growths about 60 feet above the ground, and is called the *Faithful Couple*. We measured the thickness of the bark taken from this grove, 20 inches, and which was soft and pliable as cork.

Not having time to visit the *Calaveras Grove*, located in *Calaveras County*, I am indebted to the kindness of a friend for a detailed list of trees composing this collection. Although fewer in number (93 I think) than the *Mariposa Grove*, it is nevertheless noted for a few gigantic growths. One of the largest of these, which was cut down for an exhibition, was 93 feet in circumference, and over 300 feet high. It was felled by angers, and required five men working steadily for twenty-five days to accomplish it. The *Sentinels* are over 300 feet high, and the larger one 23 feet in diameter.

The *Miner's Cabin* is a prostrate tree, 21½ feet in diameter and 319 feet in length. The *Mother* is a grand old tree, with its bark stripped off, but yet measures 78 feet in circumference and 327 feet high. A wonderful sight is the decaying ruin of the *Father of the Forest*, which, although centuries may have passed since he encumbered to the elements, measures to-day 112 feet in circumference at the base, and 312 in length, notwithstanding a large portion of the top was evidently broken off in its fall: it is hollow, and a horse and rider can enter for some distance. *Hercules*, a grand old tree, was blown down in 1862; it measured 97 feet in circumference and 325 feet long. There were numerous other trees to be seen here of immense size, but the foregoing comprise the largest specimens in the place.—(*American Gardener's Monthly*.)

## SOCIETY FOR THE ENCOURAGEMENT OF FLORISTS' FLOWERS.

WILL you permit me to refer to the notices which have appeared on this subject, and to explain what is intended? At a meeting of the Horticultural Club on the 20th April, the after-dinner discussion turned on the neglect of florists' flowers. The question was asked, Could nothing be done? and I then branched a subject which had been in my mind for some time—the formation of a society to encourage the revival of an interest in them. The proposition was warmly received, and it subsequently was moulded into this form—that I should, of course entirely unconnected with the Club, endeavour to carry out the plan, and that the first object should be to revive an autumn show at the Crystal Palace of Dahlias, Gladioli, Hollyhocks, and Verbenas. I then communicated with my excellent friend Mr. Wilkinson, and he has assured me that the *Tulce* authorities will act with their accustomed generosity. I have since seen several of our leading horticulturalists, and have received the promise of assistance from all whom I have consulted; and when I say that Messrs. Veitch & Sons, Mr. Charles Turner, Mr. George Paul, Mr. James Catnach, Messrs. Carter and Co., Messrs. Barr & Sugden, Mr. J. Fraser, and Mr. Holmes are amongst our earliest contributors, I do not despair; there are difficulties, but "*Adon carminis cunctis*."

The flowers we propose to encourage are, in addition to those named, the *Auricula*, *Pink*, *Carnation* and *Paeony*, *Pansy*, *Tulip*, and *Ranunculus*. How this is to be done I must leave at present. We have one object before us, and let us try for that first. I wish it to be distinctly understood that this society is not devised in any antagonism to other societies, but to supplement them.

I must only add that the name of the society, the form it shall take, and all such matters must be subjects for arrangement by a committee,

when we have formed one. In the meantime I shall be happy to receive names and subscriptions, as well as any suggestions. Communications to be addressed to me, *Westwell Vicarage, Ashford, Kent.*—D., *Deal*.

## NITROGEN IN MANURES.

I AM sorry "F. H. S." thinks I am wasting valuable space in calling attention to the relative value of nitrogen in manures; but if I can persuade persons who are practical chemists and agriculturists to reconsider the question I shall not regret it. "F. H. S.'s" own letter fully proves to me the necessity for so doing, and I cannot see that he has brought any fresh argument to bear against me. He says, "All cultivators of the soil, and all analytical chemists, agree that manures are powerful in proportion to the nitrogen they contain. No reasoning can overturn this fact." What fact? I may ask. Not that they really are valuable in direct proportion, but that it is generally considered so. He then says, "That it is a fact is thus tersely shown by Mr. Nesbit;" but all the argument brought to bear on this subject is a table, made by *Boussingault* and others, of different manures, showing their relative proportion of nitrogen. How this can prove the fact of their value is what I do not see; it is only arguing in a circle. Allow me to remind "F. H. S." that *Liebig*, *Payen*, *Boussingault*, and other chemists laid down the same law about the value of nitrogen as food for man, and divided all food into nitrogenous or plastic, and non-nitrogenous or lent-giving; but later researches have proved that tables of food calculated on the basis of the quantity of nitrogen are utterly fallacious. I would refer your readers to *Dr. Lethely's* work on food, from which I will make one quotation (page 4). After giving a table calculated according to the amount of nitrogen in the dry substances, he adds, "I hardly need say that comparisons of this description are of little practical value, for they furnish no indication of the digestive labour required to utilise the products; besides which, we are far from being assured, at the present time, that the nitrogenous elements of our foods are the most important."

"F. H. S." accuses me of raising a ghost for the sake of laying it. I do not assert that persons think nitrogen the only valuable part of a manure, but I say that the comparative values of manures are based upon tables calculated only on the amount of nitrogen they contain. "F. H. S." furnishes us with one of these tables, and as a case in point he draws the deduction that one ton of guano is equal to 324 tons farinaceous dung, 21 tons of horse dung, &c. I consider the deductions drawn from these tables utterly fallacious. One ton of guano might produce in its immediate effect as much as 324 tons of farinaceous manure; but, if a second crop were taken without further manuring, then the true value of the farinaceous manure would be shown. Guano, through the soluble properties it possesses, enables a plant to draw upon the manures already contained in well-farmed land, as well as giving additional valuable manure of its own. But if nitrogen is to be the basis on which the value of a manure is to be judged, how is superphosphate of lime, phosphate of soda, chloride of sodium, sulphate of lime, carbonate of lime, and other artificial manures to be compared to farinaceous manure, &c.? Ammonia is so valuable that it may very fairly be used as the basis to calculate the value of one sample of farinaceous manure with another, or one sample of horse dung with another; but it is also found that the droppings of animals are valuable in proportion as the animals are fed with grain-producing foods. Highly fed oxen produce much more valuable manure than cows, &c. But I need not add more on this point. In the same way the value of the carbonaceous elements in food is not in exact proportion to the carbon they contain, as fat is found by experiment to be 2½ times as valuable as starch containing the same amount of carbon.

I venture, therefore, again to assert, that just as *Liebig* has been found to lead a great many chemists astray in the laws he laid down as to the value of nitrogen as food for man, so he has in the same way in manures as food for the plant, and that it is time further experimental research be made.—C. P. DEAN.

## THE ARCHIMEDEAN LAWN MOWER.

IT is no part of my duty to be the champion of this new mower, as I have no interest whatever in being so. Further than having tried it, and found it having all the good qualities its promoters claim for it, I ventured to recommend it to the notice of your readers. It is exceedingly kind of Mr. Featherstone (page 308), to so gently caution your readers against placing any reliance on my statements and opinion, or "being led to purchase any novelty without its first having had a fair and proper trial." I believe, however, that in general the advantages of competing trials tend more to the fortunate prize-winners than to the general public. A mowing machine may, for instance, be got up to such a high state of perfection as to cut beautifully a certain spot of grass, and for a time while carefully handled; but how about its lasting capabilities when subjected to ordinary treatment by ordinary and inexperienced hands? I would sooner pin my faith to the opinion of the ordinary workmen, those who use it, than to the best set of judges that may be found, who can be but on-lookers. If the *Archimedeon* lawn mower has been awarded no prizes in this country, it may be because it has had no opportunity of competition. At the great International Exhibition held at Hamburg last September it was, however, awarded a medal. In this country it has

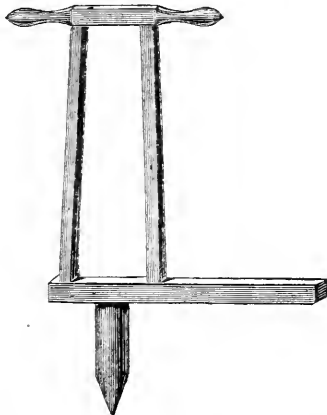
been tried and approved of by many practical men; it is used in the gardens of the Horticultural Society at Chiswick, and is reported from thence as "being the quickest, most simple, and most efficient mower ever used." In Battersea Park, also, it is used and spoken well of, in many of the London squares, and in the Royal Gardens at Buckingham Palace, &c.

My own experience of the Archimedeon mower is a practical one. It is very evident that Mr. Featherstone, although he appears generally well posted up about mowers, is entirely without experience with respect to the Archimedeon. For his information I beg to say that the "principle" he tells about, "of low speed of cylinder," is wrong, and the Archimedeon is then of course right. I do not know how many times it may revolve in a yard, but the cut of the grass is perfect. And next to answer his "whole question," Which of the different machines cuts the grass with the least labour? I say the Archimedeon. With far less exertion a man will cut double the extent in the same time that he can with any other, and if the operator likes to exert himself he will cut more than four times as much. The reasons are obvious: there are no stoppages to empty the grass box or for any other purpose, which take up a great portion of the time with our ordinary mowers. It is not so much the difference of actual speed of the mill train that makes it reach its destination so much sooner than the parliamentary, which stops at every station, as the stoppages. If the lawn is cut regularly once a week or so, as it should be, no sweeping-up is at all necessary, but if it is allowed to get long and rough the Archimedeon will cut it down, which none of our English mowers can. "But what about the grass collecting?" says Mr. Featherstone. Well, the machine never clogs, and it will pick up the fallen grass and cut it up like chaff; and, as I said, if it does not suit to let it lie, it is easy to sweep it up, and there is time to do it and to spare. I do not recommend anyone to have his lawns so untidy as to require this manipulation. I alluded to it simply as a feature. Bad policy it no doubt is to allow the grass to grow so long before cutting; it is, however, frequently the case. A mower, then, which will cut grass in every condition, fine or coarse, short or long, is surely superior to that which will only cut it in certain conditions, like our common English lawn mowers; and these conditions are sufficiently well known, so that I commit no mistake in stating that our lawns must be good and kept well if they are kept at all by an English lawn mower.

I prefer Green's or Shanks's for verges, but for general work I prefer the Archimedeon. It will do more work than any other, and cut the grass equally well; it will cut over very uneven ground and very rough grass; it will cut the grass when wet as well as when it is dry; it is remarkably easy to work; and, lastly, the simplicity of its construction renders it but little liable to get out of repair. All that is required is to keep it clean and oiled.—ARCHAMBAUD.

### POTATO DIBBLE.

I HAVE enclosed a sketch of an improved Potato dibble, which I have had in use for the last four years, by the aid of which I can plant Potatoes at more than double the rate I can by using an ordinary dibble. It may be useful to some of our gardening



friends. The manner of using it is as follows:—The foot is placed between the uprights to force the dibble into the ground, at the same time laying hold of the two cross handles at the top to guide it. It also serves to pull it up again. The lateral

extension gives the distance from one hole to the next.—T. COOKE (*English Mechanic and Mirror of Science*.)

### INSECTS INJURIOUS TO THE PEAR TREE.

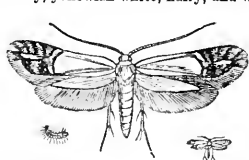
No. 1.

RECENTLY turning over the pages of a French work relative to fruit trees and their enemies, I was startled by reading a list of fifty-seven insects that are found upon the Pear tree. However, upon examining the list of these visitants it was in some degree consolatory to find that many of the fifty-seven are not known to injure the tree's produce, and the visits of some are so rare as to need no consideration. Yet when all these deductions are made, there remain about twenty-six marauders whose visits are sufficiently frequent and injurious to deserve special recognition. I will commence with the

#### LEPIDOPTERA.

TINEA CLERCKELLA.—HEMIPHA CLERCKELLA.—PEAR-TREE BLISTER MOTH.—Every gardener must have observed the leaves of his Pear trees, especially those of the Chausmontel, blotched with dark brown spots in the autumn. I had a standard tree of this variety in Essex that annually was thus injured, whilst a Swan's Egg and an Easter Bergamot close by were comparatively untouched. These brown blotches are caused by the caterpillars, or grubs, of a very small Moth called the Pear-tree Blister Moth.

The caterpillars of this Moth belong to a family called "miners," on account of their working beneath the skin of the leaves they attack, feeding only on their pulp. The red spots often seen on the leaves of the Vine and Turnip are caused by grubs of this habit. On opening one of the brown blisters on the Pear-tree leaf, a small, active, shining grub will be found, fleshy, yellowish white, hairy, and with sixteen black feet; the



head and a line down the back are brown. When thus disturbed, the grub lets itself down towards the ground by a silken thread. It forms its cocoon in the earth, or beneath some withered leaf upon its surface. From this cocoon the Moth comes forth chiefly during May, though it has been observed at the beginning of April.

In the drawing the grub and Moth are represented of their natural size, and the Moth magnified. The upper wings are orange, with a silvery spot on its outer edge, and a mingling of black, lilac, and pink on the inner angle; an orange feathery mark and four black lines mark their upper surface, and they have a white fringe around them. The hind wings are narrow, lead-coloured, and fringed. Mr. Knight's Pear trees were so injured by their grubs that he at one time resolved to remove them. The best mode of prevention seems to be to collect the leaves, and to pare off about an inch of the surface round each tree in the autumn, and to burn them.—G.

### THE MELBOURNE BOTANICAL GARDENS.

THE amphitheatre-like aspect of the gardens, as they are approached from the river front, at once arrests the eye, and they appear lovely in the extreme—towering Eucalypti, spiral Cypresses, and sturdy Oaks with their light green foliage, as well as the Callitris, or native Pines, with their long pendent shoots, and Weeping Willows, together with the English Elm trees, blending harmoniously with the dark green of the indigenous Melaleuca and sombre hue of the Aleppo Pine, all intermingling with the many intermediate shades of foliage, and the flowers of trees and shrubs, with, in addition, the varied gradations of forest scenery all strewn by Nature's own bounteous hand; although man has sadly marred much of what otherwise could have been rendered, by a little artistic skill, a public garden alike worthy of the name and fame of the metropolis of the southern hemisphere. The lagoon is in fine keeping with the surrounding view—in fact, without such a desideratum the landscape would be shorn of one of its most interesting and picturesque features. That sheet of water appears to the eye to be about twelve acres in extent, and is fringed in many parts with the beautiful Lily of the Nile (*Calla aethiopica*). The few islands dotted about could have been rendered much more effective if clothed with appropriate vegetation.

Pursuing our course along the base of the Pine grove on the right, where basaltic boulders line the winding path, economic plants of many species pleasingly adorn the sloping embankment towards the

lake. Prominently amongst the group we noticed the Tea Plant of commerce, but of rather stunted growth—the experimental area set apart for this and similar vegetable productions is far too limited in extent whereon to have any practical tests as regards the much-disputed theory of acclimatisation. There were also the Olive and Arrowroot, as well as a collection of Castor Oil Plants, Tobacco, and several varieties of Mulberry, the Guava, a group of useful Grasses, different kinds of Hops, the Chinese Tallow Tree, Logans, the Sugar Beet, the Opium Poppy, the Turpentine Tree, as well as the *Ceratania siligua*, or St. John's Bread, together with several other representative plants of botanical value.

Slowly ascending the rising hill clothed with its many Pine and *Aracaria* specimens, we reached a small span-roofed conservatory, where a miscellaneous collection of tropical and sub-tropical varieties adorn its circular shelves. Ferns of many species, and *Cactuses* in great variety, can there be seen, as well as the usual display of greenhouse and stove plants. In the oblong loamy bed we noticed the Coffee from Arabia (*Coffea arabica*), which requires artificial protection in this colony, and the celebrated Banyan tree (*Ficus religiosa*)—one single specimen in that sunny clime is said to extend over an area of five acres or more, and beneath its leafy shade ten thousand persons may find adequate shelter. The Hindoos are particularly fond of such a tree, and tell they may look to the Brahmins pass much of their religious solitude under its outstretched arms, which droop like roof, and form a series of columns after the manner of a miniature forest. Festooned along the rafters, and hanging in graceful bundles, were the racemes of the Passion-Flower, whose glossy foliage considerably enhances its suitability for conservatory decoration. There were also the Sugar-cane of commerce and Indian Shot, many tinted *Begonias* of beautiful foliage, as well as the zebra-striped Calathea, and other variegated plants. To those who delight in out-of-the-way vegetable curiosities, the Elephant's Foot will afford food for thought. It occupies a prominent place at one of the doors, and is known to botanists by its high-sounding title of *Testudinaria elephantipes*, being a native of the Cape of Good Hope.

Immediately adjoining the conservatory is the class ground, where all the natural orders, genera, and species, with the exception of some representatives, are grouped together in a series of geometrical beds, forming link after link in the ascending scale of regular progression. To the scientific student, as well as the mere pleasure-seeker, this portion of the gardens is not the least interesting and attractive.

Separated from the class ground by an oblong Pittosporum hedge of the species *englandensis* from New Zealand, is the pomological or fruit-tree department, all the trees in hearty condition and looking well, whilst ranged along a considerable portion of the boundary fence are a series of Tea-tree shelter-sheds filled with a varied assortment of Pines, shrubs, and other useful decorative plants, all grown in small pots to facilitate their distribution at the planting season, along with other out-door nursery stock, which latter covers a very considerable extent of the rising ground on the opposite hill adjoining the Victoria regia or Water Lily house. Adjacent to the Director's mansion is to be seen a small collection of medicinal plants, whilst further on we noticed some Hollies and a plantation of Oaks planted amongst fruit trees, all doing as well as could be expected of them, surrounded as they are with native Wattles and robust Gum trees. Here various avenues radiate.

In a picturesque ravine leading down towards the aviary, and close to one of the propagating pits, is a splendid collection of Tree Ferns, interspersed among which we observed the beautiful Bird's-nest species from Queensland (*Asplenium nidus-avis*), as well as the romantic Stag's-horn, together with *Orchids* in full bloom, and climbing plants hanging in graceful festoons from drooping boughs of trees and shrubs, making up in all a very delightful and charming view, worthy of more public attention. In reaching the aviary, with its artificial well-work and romantic recess, including many of the more acclimatised characters of varied plumage, we were reminded of the rocky glens, as well as open fields, with far-stretching hedgerows, and the patriarchal villages of the old country, where the carol of the lark at early morn mingled with the notes of the song thrush and blackbird, which there and then heralded the dawn of day. It is indeed gratifying to know that these choristers are now at large, and reported to be doing well in different parts of the colony. Amongst some of the more noticeable plants adjoining the aviary we noticed the Camphor Tree from Japan (*Laurus Camphora*), the fragrant New American *Neodaphne*, the golden-leaved Indian-bush Tree, the sweet *Viburnum odoratissimum* from China, the Date-Palm of commerce, as well as the Cape *Strelitzia reginae*. A fine Chilean Pine (*Aracaria imbricata*) may be seen growing at one end of the rustic bridge, whilst further on the well-known Flame Tree from New South Wales occupies a prominent place. Some of the Pinus family are there beginning to assume quite an aged look. I understand that they, together with the more attractive trees and shrubs, were planted by the former curator, prior to Dr. Von Mueller's advent to antarcctic power.

Ascending by winding walks and avenue plantations of *Grevillea robusta*, Cypress, and Moreton Bay Fig, we reached the highest summit of the gardens, where, during the summer months, sweet music is weekly discoursed from a most octagonal orchestra to large and fashionable audiences.

The large Palm house close by will well repay a careful inspection of its miscellaneous contents. Large Plantains grow in the circular

bed; the famous Abyssinian *Musa* reaches up quite to the roof, which would require a dome something similar to that at Kew to give fall scope for its beautiful leaves. We noted also the Chinese Rice Paper plant, the Traveller's Tree from Madagascar, and unique Screw Pine. Collections of Palms, *Cactuses*, fine-foliated plants, and no end of Ferns, adorn the oblong, crescent, and circular shelves. A small assortment of Roses are grouped in the vicinity of the Palm house, together with a varied collection of Conifers of rather stunted growth, which in no way can be looked upon as good representative specimens of the Pine family.

Near the centre of the gardens, at the entrance to one of the propagating houses, which latter is anything but a credit to the establishment, there is a fine specimen of the Norfolk Island Pine, and a little further on one of still greater merit rears its shaggy head on the rising terrace—*Arancaria Bidwillii*, or Moreton Bay Banyan-Bunya, whose cones are roasted and eaten there with great zest by the aborigines.

Continuing our progress towards the eastern boundary fence, we were much struck by the peculiar way in which the borders were managed. The lack of florists' flowers is much to be regretted, for what could enliven the flowerless borders more than the acclimatisation of such popular favourites, grouped and harmonised together, as carried out in similar establishments throughout Great Britain, and which also would finely contrast with the sombre and picturesque effect of the many Pines, forest trees, and shrubs which at present hold undisputed sway along the undulating borders.

Having thus cursorily run over the principal features of the gardens, we are landed once more on the banks of the Yarra, at the foot of the long Pine-shaded walk, many of which trees are bearing cones, such as *P. halepensis*, *Pinaster*, and *Pinea*. Here, also, the lake is taken advantage of, and rendered very ornamental, with its numerous water-channels and pretty island scenery; whilst winding walks, raised embankments, and *Melaleuca* plantations, together with groups of Weeping Willows gently drooping their pendulous branches in the stream, all go to make this portion of the gardens a very favorite resort of visitors. A nice iron bridge also spans the river, and must indeed be of considerable service to the inhabitants of Richmond and Collingwood, when visiting the gardens, as well as residents in South Yarra. Here, also, along the margin of the river, are double rows of *Eucalyptus globulus*, planted on either side of that pleasant walk which, for a considerable space, adjoins another on the summit of the recently-formed embankment, finally merging in the latter where the landing stage is placed, as noted at the commencement of the present sketch. The garden museum, which is in the immediate neighbourhood of the observatory, is now rich in botanical treasures, and there Dr. Mueller, as a descriptive botanist, has made for himself a European reputation, by the publication of the "Fragmenta Phytographiæ Australiæ," written, like the learned "Prodromus" of Robert Brown, in Latin, and beyond the reach of the public to understand.—(Melbourne Times.)

## THE TULIP TREE EAST OF THE MISSISSIPPI RIVER.

The Tulip Tree (*Liriodendron tulipifera*) is probably the largest tree of the older States. It extends from New England westward to the Mississippi, beyond which it is rarely found. It grows in Arkansas as far west as Crawley's Ridge, thirty or forty miles west of Memphis. It was not found west of this by those engaged in the geological survey of Arkansas. According to Dr. Engelman it is found in Southern Missouri, but Professor Swanwick, in his report on the geology of that State, states that he and his assistants did not recognise it. It is not indigenous in Texas, and is rare in the Gulf coast States east of the Mississippi. It is rare in the western part of Massachusetts, and in New England does not extend farther eastward. Michaux says that its northern limit is the southern extremity of Lake Champlain, in latitude 45°. It occurs in Canada in the vicinity of Niagara Falls, from whence it extends westward into Michigan, where it is as far north as Ann Arbor. It is a stately, magnificent tree, as seen in southern Indiana, Kentucky, Tennessee, and the western part of North Carolina, where it is upwards of 100 feet in height, with a diameter of 6 or more feet, all of sound wood. I have measured some *Sycamores* or *Buttonwoods*, with a circumference greater than the Tulip Tree, but they were hollow and mere shells, and only 60 or 70 feet high. The Tulip Tree has, I think, ampler dimensions and more wood than any of its associates in the forest.

The following measurements of Tulip Trees were made by me at the height of 3 feet from the ground, unless when otherwise stated. One near Waynesville, among the mountains of North Carolina, 26 feet 10 inches in circumference. One 33 feet in circumference, at Cold Spring, on the waters of the Pigeon River, in Haywood County, in North Carolina. Another 29 feet 8 inches in circumference, on the head waters of the Little Pigeon; and several of 20 feet and upwards in circumference, near the same

place. One 24 feet in circumference, on Jonathan's Creek. All of the preceding were in Haywood and its adjacent counties, in the mountains in the western part of North Carolina. They grow in the rich coves and valleys, at the base of the mountains, where are also large Oaks and big Chestnuts. All of these Tulip trees have a height of upwards of 100 feet.

Near Rising Sun, in the southern part of Indiana, are many large Tulip Trees, such as 18 feet 6 inches in circumference, 16 feet 6 inches in circumference, and 17 feet 9 inches in circumference. The elder Michaux measured one, three and a half miles from Louisville, Kentucky, which was 22 feet 6 inches in circumference at 5 feet from the ground, and whose elevation he judged to be from 120 to 140 feet. A few years ago I visited Dr. Short, the botanist, who dwelt near the locality of this tree. He informed me that he had seen it, but that it was blown down many years ago during a thunderstorm. He assisted me in measuring some large Tulip Trees in that vicinity, but we found none upwards of 6 feet in diameter.

Dr. A. Flournoy, who lives near Shreveport, in Louisiana, told me that he saw a Tulip Tree in Middle Tennessee, which squared 50 inches at the butt, and measured 105 feet to the first limb. From this tree a dug-out boat or canoe was made, which was 105 feet long. A young gentleman informed me that one was cut down near his father's, in East Tennessee, on a small creek emptying into the Pigeon River, in Sevier County, which was 14 feet in diameter.

The Tulip Tree is a moderate grower, and difficult to transplant from the woods, as I know very well from experience, having tried several and failed. I counted 215 annual rings in one at Camp Stoneman, near Washington, in the district of Columbia, which was 2 feet 6 inches in diameter, and another which had nine annual rings, and was 5 inches in diameter. They grow on upland, in a soil of moderate fertility. Professor Meek, the well-known geologist and paleontologist, informed me that there was a Tulip Tree standing on the farm of G. C. Schank, near Middletown Point, in New Jersey, which was 10 feet in diameter.

Professor Wood in his "Class Book of Botany," states that he measured a Tulip Tree which had been recently felled, which had a circumference of 23 feet at 4 feet from the ground, at 30 feet from the ground it was 5 feet in diameter, the whole height 125 feet.

Where the large Tulip Trees grow and grew, Pines suitable for lumber are rare. The timber of the Tulip tree is used as a substitute for the Pine; hence, the large Tulip Trees of the country are fast disappearing.

The Tulip Tree is decidedly ornamental and deserving of general cultivation. Its smooth curious leaves afford a fine contrast with those of other trees. In autumn its leaves turn yellow, or yellow with green spots. Occasionally some of its leaves are very beautiful, being yellow with green along the rims, or tinged with brown; I saw such on the Indian Reservation, on Catauga Creek, near Buffalo, New York, in the fall of 1865.—S. B. BUCKLEY—(*American Gardener's Monthly*.)

## NOTES AND GLEANINGS.

A MEETING on the subject of the HORTICULTURAL DIVISION of the forthcoming INTERNATIONAL EXHIBITIONS, will take place on Friday, May 13th, in the Council Room of the Royal Horticultural Society, at South Kensington, when the attendance of the exhibitors is especially requested. The Bishop of Winchester, Vice-President of the Society, will take the chair at noon precisely.

THE COUNCIL of the ROYAL HORTICULTURAL SOCIETY have elected LORD HENRY GORDON LENNOX, M.P., to serve on the Council, in place of the late Gen. Hon. C. Grey, and his Grace the President has nominated his lordship one of the Vice-Presidents of the Society for the current year.

WE are informed that Mr. WILLIAM PAUL, of Waltham Cross, will hold an exhibition of ROSES in Pots, at the Crystal Palace, from May 28th to June 4th.

WE are very pleased and not surprised to see a second edition already of the REV. S. REYNOLDS HOLE'S "BOOK ABOUT ROSES." We said on its first appearance that it is "a very captivating book, containing much valuable information in a style which cannot fail to please," and the public have agreed with us. In this second edition the few corrections needed have been made, and we again recommend it as one of the most readable of instructive books. Of the new Roses the author recommends Abbé Giraudier, Charles Turner, Ferdinand

de Lesseps, Jules Chrétien, Lord Napier, Louis Van Houtte, Mademoiselle Eugénie Verdier, Perle Blanche, and Thomas Methven.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

A good sprinkling of the Cape Broccoli may now be sown, likewise Grange's Impregiated Cauliflower and Walcheren Broccoli. These will succeed the Cauliflowers sown in February. A small first-sowing of *Endive* may be made. With regard to *Peas*, *Beans*, *Turn Carrots*, *Cresses*, *Lettuces*, *Radishes*, *Spinach*, &c., I may repeat my advice offered in one of my former calendars—viz., to sow a little more when the preceding sowing is fairly above ground. Sow a row of *Gherkins* if not done.

Those raised in heat in boxes should be hardened forthwith, preparatory to planting out. The bed may be made by digging a trench 1 foot deep by 3 feet wide in a sunny spot well sheltered from the wind, such shelter being of the utmost importance. A collection of all the weeds in the garden, the trimmings of ditch sides, old Ferns, and hedges, blended with a little hot manure, will do well. Keep the manure low, and fill up the trench as a mound nearly 2 feet above the ground level. Soil it over slightly, and raise deeper hillocks where the plants are to be set. Those who cannot obtain hand-glasses may stretch some sticks or hoops across, and cover-up at night with old mats. Such, however, should not trust their plants out until another week.

### FRUIT GARDEN.

The spring disbanding of fruit trees is a matter of considerable importance at this period, for on the thinning properly and in due time, success in ripening both wood and fruit is mainly dependent. This process should not be completed at one dressing, the operation is too severe. The trees should be looked over about thrice—viz., first, when the young shoots are about 2 inches long, a second time in about a week afterwards, and finally in about another fortnight. The first dressing should consist chiefly in rubbing-off foreright or ill-placed shoots, at the second thinning a selection of the necessary quantity of wood, and in the proper position, may be made, and at the last all the gross shoots or robbers should be stopped in order to equalise the sap. Gradually thin Apricots, remembering that as the spring has been rather capricious, many may drop in the stoning process. Use the engine where the red spider is feared; those, however, who have followed the directions given as to the use of sulphur, will save themselves endless trouble, and the trees much starvation, which these cold evening slubions are sure to produce. No wonder Peach trees gum; a rich and deep soil beneath, and such sudden depressions of temperature in the shoots, are quite sufficient of themselves to produce the evil.

### FLOWER GARDEN.

In this department the next few weeks will be devoted to filling-up the flower-garden beds and clumps intended for the summer and autumn display, and when a change has taken place in the weather, every exertion should be made to have the planting-out completed with all possible dispatch; and promising the plants intended for each bed have been previously determined and hardened off, no great difficulty will be met with in filling-up the beds. Some allowance must, however, be made in regard to the time when it is desired to have the principal display of flowers; if early, the plants will require planting more thickly, and need not be stopped; if not before a later period in the summer, somewhat thinner, and the flower buds should be pinched off as they appear, till the plants have filled the beds. There are two objects mainly to be held in view in arranging the planting of parterres and flower gardens; one is to produce a striking effect by employing plants only of a decided colour—principally red, blue, and yellow, using white for separating the different divisions. When the colours are well contrasted this plan is very effective, particularly when viewed from a distance, and it is well adapted for situations where the beds are not numerous, and where there is a considerable breadth of either grass or gravel to overpower. Yet a repetition of the same flower, however brilliant, is seldom so pleasing on a close examination as where variety both in form and colour has been called into play, and where the gradations into which the primary colours run have been arranged in accordance with the rules governing their distribution. There is now no lack of colours to effect this, as nearly every class of bedding-out plants presents sufficient variety for the purpose. In single beds or in the mixed flower garden much may be ac-

completed in this way by using a decided colour for the centre, and surrounding it with plants of the same kind but of less intense colour, which should gradually diminish from the centre to the sides. This, with well-contrasted edgings, particularly for the larger beds, will be found more generally pleasing than when masses of one colour are only employed. Select a shady border, and give it a good dressing of rotten dung or leaf soil slightly forked in, for planting with the runners of the different kinds of Violets for forcing; the Neapolitan is the best for frames or pots, and the runners will now be found in a proper state for removing. Plant them 8 or 10 inches apart, water them abundantly in dry weather, and pinch off the runners as they appear. If the soil is rich and open they will be stout bushy plants by the autumn, and may then be either potted or planted in pits for forcing. Auriculas must not now be forgotten, because the amateur has many demands on his time. Shade them in very hot sunny weather, though they cannot at this season of the year be easily too much exposed, provided the regular attendance is given to water, &c. Polyanthus cannot bear the midday sun except on very cool subsoils. A shady situation under a hedge with a north aspect will be suitable for them during the next three months—that is to say, if grown in pots. Do not forget to fertilise some of the best breeder Tulips in order to obtain good seed. It would be time and trouble thrown away to cross yellow grounds with white ones, or the contrary. In choosing sorts to save seed from, let them be thick in the petal, round at the top, clear in the stamens (for four stamens, though, perhaps, not yet acknowledged, are a very great defect), as much like the old Catalpa in the cup as possible, and then the raiser of seed will not be far wrong. Apply the farina with a small camel-hair brush to the stigma of the variety intended to be operated upon, covering the flower with a hand-glass. Should the present dry weather continue, Carnations and Picotees will want occasional waterings, which when done should be done well.

#### GREENHOUSE AND CONSERVATORY.

Camellias making their wood should have constant shading; the house should be kept very moist day and night, and the plants frequently syringed. Pay every attention at this period to plants of climbing habit, whether festooning from the roof, up pillars, or on trellises in pots. Let stopping, thinning, training, &c., proceed in a methodical way. Many of the conservatory plants are unproductive of blossom from the gross shoots not being stopped. Those who grow that delightfully sweet winter flower, the Cyclamen persicum, will find it the best plan to plant it out at this period in a highly raised bed in the kitchen garden. This bed should be composed chiefly of peat soil and coarse sand, to which a little sandy loam and a little leaf soil may be added. It is truly astonishing what superior plants they make in this way. I would recommend the common Mandarin and Otaheite Oranges as valuable plants for forcing into bloom in the winter months; for that purpose they should be kept rather under-potted, and the young wood pinched back to form bushy compact specimens. The *Daphne indica* and *indica rubra* are valuable as winter-flowering plants, as well as for their fragrance. The Chinese Azaleas, which have been some time growing, should be kept in heat until they have set their buds, when they may be removed to the open air, may the Orange trees when the shoots become strong and firm; exposure afterwards, if they are protected from heavy rains, will assist them to ripen their wood.

#### STOVE.

*Centradenias*, *Eranthemums*, *Poinsettias*, *Justicias*, *Giesomerias*, *Clerodendrons*, *Euphorbias*, *Brugmansias*, *Gesneras*, *Vincas*, with other ornamental stove plants, more especially those intended to relieve the dull winter months, should at this period have the highest of cultivation. They should be allowed plenty of room and clear manure water, and should, if requisite, have their rambling shoots stopped occasionally. The latter should be done forthwith, as young wood made late in the season will not produce winter flowers.—W. KEANE.

#### DOINGS OF THE LAST WEEK.

SUNNY days, cold nights, and a dry parching atmosphere have been the characteristics of the week. Almost every night has been frosty. On the 3rd and 4th inst. the frost was sharp for the season—how cold on the ground we do not know, but on the north side of a wall, at 5 feet from the ground, the thermometer indicated at 4 A.M. 5° or 6° below the freezing point, but the temperature rose rapidly after the sun was

above the horizon. In pastures, fields, and gardens we never knew growth proceed more slowly, owing, especially in heavy land, to the coldness of the ground, as the heat that is absorbed during the day seems to be pretty well radiated back again at night. Peas and Beans grow, it is true, but very slowly. Watering has been out of the question, except to a few early Peas, and a piece of Cabbages, which rather delight in a moist cool bottom. The latter, refreshed with sewage, did improve vastly afterwards. Asparagus has been little affected by the weather, yielding profusely, and neither it nor anything else in the vegetable way was at all influenced by the frosty nights, partly because the shoots were thawed before the sun reached them, as the sun was kept off by some fine Elm trees. The dryness of the air and its stillness helped also to secure us from danger. We have seen Asparagus shoots hopelessly blackened with half the amount of frost we lately had. Expecting it to come we gathered pretty closely every night, but still a few shoots would be missed or come up during the night, and none of these were injured. The air was dry, but the surface of the ground, owing to the scattering of salt, was moist. A little salt is a good moistener for dry soils; its free use on walks is sure to make them moist; therefore, when salt is employed to clear walks of weeds, it should be used early in the year. If used in autumn, there is nothing to prevent the walks being damp in winter. All plants that thrive within reach of the sea spray, as Asparagus and Sea-kale, are greatly benefited by salt sprinklings.

*Asparagus Cutting*.—For some time we have grown our Asparagus chiefly in rows 2 feet apart, planted on ridges at first, which get levelled in the course of time. This does away to a great extent with bed-making, and permits of a more free rotation of cropping. Could we manage it, we would give our chief surface-manuring to our beds when we had finished cutting, so as to encourage free growth in summer. As to the cutting all or leaving some, we have resolved to cut no more from a piece we shall be likely to force, but to let all grow so that the growth may be more quickly perfected, and the buds ripened in the autumn. After trying many modes we have been tolerably well convinced for some time, that it is best in the main gathering to gather all—that is, to cut the small shoots as well as the large ones, until we give up cutting altogether. The smallest shoots when short and young are just as useful for soups, &c., as the larger shoots are for the vegetable dish. We have carefully gone over the Asparagus ground, taking all the best and leaving the small to keep on the growth. Growth was thus, no doubt, maintained, but we believe the result of these weak shoots being left was to keep a great many buds dormant that otherwise would have burst into shoots if all the first shoots, say towards the end of May, had been cut; and then these late shoots, coming away simultaneously, would ripen good buds at the base to grow freely next season. We came to the conclusion that when we cut all at first, we had thicker beds in the summer, and a better supply of shoots next spring, than when we more carefully left the weaker shoots as if to keep on a languid growth.

No doubt circumstances will greatly alter cases, and there are few rules without exceptions, but the subject is worthy of the attention of our readers, and we should be glad to learn the experience, practice, and opinions of others on this matter. The prudent man will not be too tightly tied to any rules, but will be chiefly guided by circumstances. As an illustration, in all good loamy Strawberry soils, we would consider it next to barbarous to mow down the beds and rows of Strawberries after the fruit was gathered; but we have seen many beds of Strawberries on rich light land that made such an abundance of long-stalked leaves, and these so spotted and browned by the sun as to be unfit to return much to the roots, and thus mature the buds, that we would have little reluctance in cutting all such browned foliage away at once, and thus encouraging fresh green foliage that would be near the ground, which would be accompanied by plump ripened buds, that would bear plentifully the following year. The exceptional circumstance would not at all render the cutting off Strawberry leaves in summer generally advisable.

Sowed Onions for succession, as stated last week, more Carrots for succession, the main crop of Beet, Salsify and Scurzoners, Turnips, and Radishes; also we earthed up the earliest Cauliflowers, and protected seeds and seedlings from birds.

*Earthing-up Cauliflowers under Glasses*.—We generally leave five plants to a hand-light, and if we can spare the light we keep it longer over the plants than is generally done, as an

early Cauliflower is one of the finest vegetables of the season. As long as we can keep the top lights on at night. Our plants were becoming too large for this confinement; we could easily have raised the lights, by placing a brick or something of that kind at each corner, but that would have let in the air all round, and the bricks would have had to be brought, and to be taken away when done with. We prefer lifting off the hand-light, top-dressing the plants well inside with rotten dung, &c., and earthing-up outside, so as to raise the ground 5 or 6 inches higher for the glass to stand upon. A little trench is thus made on each side of the Cauliflower ridge, and in very dry weather litter or short grass is placed along the sides of the ridge. Sometimes we use these little trenches for early Celery, the leaves of the Cauliflower being of much service by shading it at first. By this earthing-up we can keep the hand-lights on at night for several weeks longer than we could do without elevating the glasses, and we gather Cauliflowers proportionally early, if all goes on well. When the plants reach the top again the glasses are removed, the inside freely mulched, and the outer plants bent a little towards the outside, so as to give more room to the foliage.

We have tried many modes, as potting in autumn, repotting early in spring, and turning out good plants, so as to have early Cauliflowers, but on the whole we have found no plan better than turning out small plants under hand-lights in October, and if vermin let us alone we have generally had very satisfactory results. The only time the hand-lights were best, was by plants potted in small pots in October, kept in a frame, shifted into 4-inch pots in January, into 6-inch pots in the middle of February, and turned out with good balls in an earth pit protected with old sashes, mats, &c., at the end of March. These furnished compact heads in May. The coldness of the season will make our first hand-light Cauliflowers later than usual, but they will be as early as we want them, for Broccoli is little valued when the crisp Cauliflower comes in.

Many of our readers who must dispense with hand-lights or boxes, may yet have rather early Cauliflowers if they keep their plants as much as possible from checks. Thus, if the plants must be procured with little or no earth about the roots, let the roots be well soaked in puddle before planting them. In most cases it would hasten cutting-time if such plants were pricked out in a little bed 4 inches apart, the bed having some rough rotten dung in it, where the plants could be easily watered and shaded from bright sun, and then, when all right, lifted with balls, and turned out carefully in finely pulverised mellow soil. Even then, in such dry parching weather as we have had, an evergreen twig or two stuck round them would break the force of the sun's rays, and a sprinkling on the leaves would do more good than watering at the roots where there was moisture enough.

This little matter of avoiding checks is yet most imperfectly acted upon even by some of our keen enthusiasts. We observed a case in point not long ago, though we should have gone out of our way to notice it then. A man was anxious to have a score of Cauliflower plants, and as he had a conveyance, they were carefully lifted, and placed each with a little ball firmly in a box. "Oh, never mind the box," said the obliged person; and seizing the Cauliflower plants by their tops, he roughly shook all the earth from them, and a good portion of the fibres with it, and wrapped them in piece of newspaper, looking as if he had done something very clever. It is not very easy to kill such plants. We presume they grew after a time, but one thing we are sure about, and that is that the crop would be cut three weeks later than it might have been if the plants had gone home in the box, and received fair attention afterwards.

Then as regards seeds and seedlings. No seeds with us have been touched in the ground that were crusted with powdered red lead, but the young Greens as they appeared above ground were caught by the young leaves and pulled out. We have run strings with pieces of newspaper attached to flap about, and thus kept them off for a time. Netting is, perhaps, the most effectual, but we never yet could so net the ground that green linnets and other birds would not find their way in. We have found clanking pieces of tin, looking-glasses, and gnyls of all sorts useful for a time, but all fail to keep the birds away when they become used to it. Variety of expedients is therefore useful. For Peas, &c., the tops of which were picked before we were out of bed, chiefly by wood pigeons and partridges, we have tried the pepper remedy, and though we dusted the pepper very slightly, we as yet see no signs that the dusted part has been touched.

We may here mention in reference to grass mice, that made

such havoc among our Strawberry plants and young Cauliflowers, that a man has caught a good many very large ones with the figure-4 trap by simply putting a piece of tender Lettuce from a frame on the point of the stick, instead of, or along with, a Bean or piece of cheese.

#### FRUIT GARDEN.

Run the hoe again through the Strawberry ground, and all places where it could go, and watered the most forward *Strawberries* on a south bank, as they were becoming rather dry. We should like the ground to be a little warmer before we water generally. A fine crop in the open air, however, depends greatly on moisture at the roots. We used house sewage rather strong, undiluted, but keeping it between the rows of plants, not close to them, and then in case any should have gone too near, we followed with a sprinkling of clear water over the foliage. The season is so late, that we most likely will take up some plants pricked out late last autumn, but many of them showing strongly, so as to keep up a succession, for we think what we have will scarcely give us a supply to the middle of June, and we question if we shall gather many out of doors until after that time. But for mice, &c., eating out the buds of our plants, we should have had enough in pots to keep us to the end of June.

There are two modes we often use to prevent a blank being felt between forced, assisted, and natural-grown Strawberries, and if we have mentioned them before, old readers will excuse reading an old tale. Of course, as a sort of precaution, we like to prick out a few rows of runners rather thickly in the previous season. A great many of these will show well, and thus we can select our plants. The first mode is to pot these plants firmly, one or two plants in a pot, raising them with a ball, after having watered them a day previously. These pots are plunged to the rim in a mild hotbed, formed of litter, a little grass, and from 6 to 9 inches of half-rotten leaves, or rotten dung. We do not care for a frame over these; if one is handy we use it, with a brick under each sash back and front. We like the bed in the open air as well, with a few twigs round it and in it just to break the force of the sun's rays. The object of the heat beneath is to fill the pots with roots before the trusses extend or expand much. As the pots are thus filled with roots they are gradually raised out of the bed, and taken to any place desirable under glass, and in general produce fine crops. The second plan is to make a slight hotbed in a pit, or fir frame, place over it some 6 inches of good soil, raise the young plants showing trusses as above with balls, plant in rows some 15 inches apart, water well, leaving the dryish soil on the surface, give air early, and shut up early, and a critical fortnight's time may then be bridged over, as even in dull weather the little heat below is of great advantage. A third mode we ought to mention, as in bright sunny weather we can by it gain eight or twelve days, and that is merely covering a border, better a south sloping bank, with sashes. This is quickly done by placing a row of 8-inch pots at the back, and another in front, at from 6 to 8 feet apart, laying a rail on these pots, setting the sashes on the rails, and putting a board against the pots and rail in front, and at the back. Air may thus be given to any extent. The earliness of gathering depends on shutting up rather early in the afternoon. As stated, in sunny weather much time will thus be gained; in dull weather hardly anything. We are generally content with having the ground in its natural state, or with the customary straw or litter covering. We have used tiles, slates, &c., for covering the ground, but the advantage was scarcely equal to the labour. Red, or light brown tiles were, perhaps, the best. Slate absorbed heat, it is true, but in bright sun the berries resting on it were apt to be scorched. We have coated slates with sulphur and lime, and then the fruit near the slate were burned by the reflected heat. We never found anything of the sort from the brownish-coloured tile. We have had such coverings in the open border, and with similar results, and we mention these matters that many with small means may strive to have Strawberries before these come in without help.

There is one warning we feel constrained to give. Young plants may be raised and treated successfully as above, after March and April. Such plants would be of no use for early forcing. To succeed early—that is, to have fruit in March, the pots must be full of roots early in the previous autumn.

The frost has done little damage to fruit trees. The foliage, as yet undiminished, saved Peaches and Apricots. We noticed lots of Cherry blossom looking as if scalded at the ends of the bloom, but the pistil and young Cherry seemed quite safe. The foliage of Currants and Gooseberries though stiff in the morning, acted as a defence to the fruit, and the Apple

blossom that we are told suffered in warm places, and farther south, was here not far enough advanced to show the parts of fructification. We hope such frosts will soon be over. We do not notice that Pears or Plums have suffered in any material extent as yet.

#### ORNAMENTAL DEPARTMENT.

Very busy, but chiefly a repetition of the work of previous weeks, the sun and parching weather keeping us behind in much necessary potting, &c. Sowed a good many annual seeds in the open ground and under a little protection, to be raised in patches if wanted. Many failures in annuals take place from want of moisture after germination, potting the surface with waterings then, and leaving the plants too thickly when they come up. In such a season as this, hardy annuals sown now will often beat those sown a month or more ago. When the ground is dryish it is well to draw little drills with a pointed stick, run the spot of a small watering-pot along the drill, shortly afterwards sow the seeds, and then cover with a little light soil. We generally add a little eot, which marks the place and keeps the birds away. Sufficient moisture is thus secured, and the dry covering keeps the seeds warm.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending May 10th.

DATE.		BAROMETER.		THERMOMETER.				Wind.	Rain.
		Max.	Min.	Air.		Earth.			
				Max.	Min.	1 ft.	2 ft.		
Wed... 4		30.135	30.119	59	35	47	46	N.	.00
Thurs... 5		30.173	30.161	63	40	49	46	N.W.	.00
Fri... 6		30.287	30.207	62	26	51	47	N.	.00
Sat... 7		30.299	30.221	59	23	51	47	N.E.	.00
Sun... 8		30.272	30.215	55	30	49	47	N.E.	.00
Mon... 9		30.137	30.273	62	33	47	46	S.E.	.00
Tues... 10		29.975	29.721	61	25	49	46	E.	.01
Mean..		30.197	30.083	60.28	33.28	49.00	46.43	..	0.00

- 4.—Cloudy and cold; fine; overcast at night.  
 5.—Fine but cloudy; very fine; clear and fine.  
 6.—Cloudy; fine; clear and fine, cold wind.  
 7.—Very fine; overcast; fine; clear and very frosty.  
 8.—Densely overcast, cold wind; overcast; clear and frosty.  
 9.—Foggy and overcast; fine, slight fog; densely overcast.  
 10.—Overcast; very fine; clear and fine.

#### TRADE CATALOGUES RECEIVED.

B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.—*Catalogue of Orchids, Ferns, Palms, and General Stove and Greenhouse Plants, &c.*

J. Carter, Dunnell, & Beslie, 237, and 238, High Holborn, London, W.C.—*Carter's List of Bedding and other Plants for 1870.*

Thomas Sampson, Preston Road Nursery, and Hounstone, Yeovil.—*Catalogue of Bedding Plants.*

Joseph Westley, Floral Nurseries, Blisworth.—*Descriptive Catalogue of Bedding Plants.*

Thomas Bunyard & Sons, Maidstone and Ashford, Kent.—*Catalogue of Bedding-out Plants, Greenhouse Plants, &c.*

#### TO CORRESPONDENTS.

65<sup>th</sup> Being published in time for transmission by the Thursday morning mails, THE JOURNAL OF HORTICULTURE should, with few exceptions, be delivered on the same day in all parts of the country. If there is any delay, let our readers apply to the nearest railway bookseller, and by paying their subscriptions in advance their copies will be regularly supplied. If country booksellers cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.

\*.\* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

N.D.—Many questions must remain unanswered until next week.

HORTICULTURAL DIRECTORY.—In answer to many subscribers to the "Horticultural Directory," we have to state that the publication has been delayed in consequence of the vast number of changes and advancements which were necessary to be made. The work is now so far advanced that it will be in the hands of the booksellers in the course of next week.

GARDEN PLAN (A Subscriber, Warwick).—We never undertake the

planting of flower beds, we only criticise the planting proposed. He must be a rash gardener who ventures to arrange beds in a place he never saw.

PANSIES (X. Y. Z.).—We cannot recommend dealers. If you refer to our advertising columns you will see those who make special mention of them. Any well-known florist could supply named varieties.

SEEDLING CINERARIAS (J. T. Maresnyne).—Your seedlings are very pretty. No. 4 is the best in form, indeed the only good-formed flower. The others are better in the outline. There are hundreds of seedlings as good, and many better.

SYRINGOIDE ROSE TREES (Amateur).—It is not too early to syringe Roses out of doors. Do it early in the day, and then the leaves will be dry before night. When the wind is north or north-east, it is safest not to syringe till the day after. If the water over the leaves of all kinds of plants this dry weather would do good, it put on early enough in the day for the plants to dry before night.—W. F. KABCFFEE.

SEEDLING PELARGONIUMS (Leoneum).—The frass is good, the deep scarlet of the pips very bright, and the leaf large; but we can give no opinion about the plant, for the habit of that is most important. (M. C.).—There is no special merit in the leaves you sent; many like them, and better.

SEEDLING PANSIES (Brambridge).—They are good border flowers, but not equal to the florists' flowers exhibited. If you enclose five postage stamps with your direction, and order "Florists' Flowers," it will be sent from our office post free. It contains what you ask for, and more which you ought to know.

ROSE LEAVES SCOLLOPED BY A BEE (S. C. O.).—It is done by the leaf-eater bee, *Apis centumalis*. You will find a drawing and description of the insect in our volume 1, page 53. The insect fixes its nest with the pieces of the leaves.

MALTESE-CROSS FLOWER-BED (Centurion).—You could not do better than send your plan and statement of wishes to the nurseryman you name, and state what price you would like to give.

PEACH TREE IN GREENHOUSE NOT FRUITING (F. W.).—We think the Peach tree has not a due amount of light, so that the wood does not ripen thoroughly. We advise you to syringe the tree well so as to keep down insects, to give plenty of air, and to get the tree to the best position. Allow no climbers on the roof, nor other plants, to shade the tree.

PLANTING POTATOS (Idem).—We prefer the manure put on in the previous autumn, and dog in. It had not been done we would spread it on the ground, and mix it in very well. The distance you name is not too much for good-sized sets of President Lincoln.

GRAFTS FAILING (A Reader of the Journal).—We do not think you will succeed in grafting Apricots and Peaches. It is rarely that they succeed when grafted, and if they do there is a serious amount of gumming, the junction or union being effected so very rarely. The best way for those subjects, and indeed the only successful mode of propagation, is the Rose graft failed through the scions being taken off too long before they were worked. Grafting Rose scions out-of-doors is not a successful practice. The grafts ought to be established in a house, or in a cold frame, and the pots placed in a house with a gentle heat, bottom heat being necessary. The grafting is best performed early in February, the cuttings or scions being taken off the plants as required. A bottom heat of 55° to 70° is required, with a top heat of 50° to 60°, and a rise from sun.—G. A.

DENDROBIUM FORMOSUM GIGANTEUM NOT FLOWERING (Duckering).—It ought to do well in an intermediate house; but yours is perhaps too cool. Could you not give it additional heat when making its growths, and ripen them well off in a dry atmosphere, but with plenty of air? It certainly requires more heat than many of the Dendrobiums; but as it grows freely, all we think you require is a little additional heat to secure thorough ripening, and then we have no doubt it would flower freely.

COVERING A CONFINED SPACE WITH GLASS (A. S.).—We have no doubt that the space would be best covered with glass, and as it receives no sun the most suitable plants are Ferns; indeed, it would make a first-rate cool fernery, in which you could grow most of the greenhouse kinds, and the better of the hardy exotic and British Ferns, both of which require in confined moist places a glass roof to do well. It would also be suitable for some of the very greenhouse plants, and the trade is effected in this way as a fernery, which we think would give the greatest satisfaction. It would not be suitable for flowering plants.

POMEGRANATE NOT FLOWERING (—).—The cause of the plant not flowering we should think is its not having sufficient warmth. We advise you to train the shoots on the glass, and give them a position in the lightest and warmest position in the orchard house. Keep the shoots moderately thin to expose them fully to light and air. Water freely but not excessively up to August, and then only give water enough to keep the leaves from dropping, and then keep it dry. The main point is to have the wood well ripened, and we think this is effected if the plants flower and fruit freely. We think a heated house necessary for their flowering and fruiting in Yorkshire.

PEAR TREE LEAVES BLISTERED (Somerset).—The blistering is occasioned by the rupturing of the sap vessels owing to cold. The only remedy is to protect the trees with canvas, but doing so will not tend to heal the leaves at present affected. Your best plan will be to pick off the worst leaves, and syringe the trees with a solution of soft soap, 1 oz. to the gallon, in the evening, but not when there is likelihood of frost, and every other evening with rain water. The trees will give perfect leaves when the weather becomes warmer. Blistered leaves on Pears are very common this year—occasioned by the recent warm weather causing rapid vegetation, and cold weather and easterly winds afterwards setting in.

ACRICLE CULTURE (T. M. S.).—The best kind of soil is three parts loam, near the surface light, but of a soil so well mixed, and chopped up and made fine, one part cow dung a year old, and one part silver sand. Kelping is best done after the plants have flowered. Water should be given so as to keep the soil moist, but none to be given until it is required, and then water with the finger. The trees will not know of any mode of checking the growth except by keeping them close, and that is attended with weak growth and numerous other evils. Slow progressive growth is best.

HANDSOME GORDON (A Constant Reader).—Custard Striped (small fruit), Grand Mogul, and Turk's Cap are three fine ornamental Gordons; and other

three are Lurline Glace Melon, Marmorata superba, and Zebrina superba, all large.

**EPIRACIS LEAFLESS—CINERARIAS UNHEALTHY—DEUTZIA GRACILIS NOT FLOWERING** (*Wetherby*).—The Epiracis must be leafless from want of water or the attacks of insects, but which we could not say without a specimen. Why were they not cut down after flowering, so as to encourage new growth? Ours were back about a month ago, some of them earlier, and they are now making new shoots, and are quite green. Cut them down now to within an inch of the old growth, or the wood of the previous year. Shift them into larger pots when they are beginning to grow. The Cineraria leaves are curled and shriveled, and the plants are quite prostrate, probably green aphid or thrips, or both. Fumigation with tobacco is the remedy, keeping the plants in a well-aired house, cool, near the glass, and moist. We hardly know how *Deutzia gracilis* could have been grown two years without flowering.

It is such a small plant, and so common, that it is almost a pity to grow it. It has two parts light, foam and one part leaf soil, with a free admixture of sharp sand. Grow it in an open situation out of doors, and keep it well supplied with water in dry weather. In autumn plant it in a sheltered position or cold pit, after the leaves have fallen; repeat the plants when the soil is just frozen in the house, and give them a temperature of 45° to 50° for a fortnight, and then raise it to 56°, and in that they ought to bloom well. Every gardener ought to understand such plants, they are of the most easy culture.

**ALYSUM VARIEGATUM** (*Alpha*).—If you mean *A. maritimum* variegatum, it is less annual. *A. A. orientale* is a perennial.

**FUMIGATING VINES** (*Despair*).—Putting sulphur on the burning tobacco caused sulphurous acid to be formed, which is fatal to all leaves and flowers. You had better syringe the leaves, and then allow them to remain. If they fall, others may be produced.

**VINE LEAVES WARTING** (*C. Roberts*).—We do not think you will have any necessity in fumigating, as a fact, in regard to the warting or corky, or ragged leaves on the vine leaves, as we have failed to discover a cure of either. The small warts here and there on the back of the leaf are the result of a too close and moist atmosphere; and the shrivelling at the edges of the leaf is owing to scalding from rain, giving green rings to the leaf. It is just possible the scalding may be partly owing to spots on the glass, but we should judge the above was the chief reason. Early air-giving and an atmosphere a little drier, we presume, will make all right.

**FLOWER-BED ARRANGEMENT** (*An Irish Subscriber*).—We like your proposed arrangement; only, but for the dark centre of 4, 4, the prevailing color in these and in the rose to be used, the *Caryophyllus* and *Paeonia* variegatum is not an effective edging to yellow. Purple or blue would be better. Variegated *Alyssum* would make a good edging to 7, 7, *Trentium* and *Rose* *Pelargonium*. *Pyrethrum* would make a good edging to No. 6.

**CAYENNE PEPPER FOR FUMIGATING** (*A. R. P. G.*).—Much obliged. The pepper is used for fumigating, but it is not so good as Cayenne pepper, but that is anything but cheap. We know how pungent it is, but in one or two cases we found it was too powerful for some plants. A little along with tobacco is very well.

**FUNGUS NOT FLOWERING** (*Centurion*).—The plants in the open ground ought to flower if planted in well-drained light soil, and when growing, light and warm, supplied with water during dry weather. They ought to have a sheltered situation. Mulch with leaf soil in autumn, about 2 inches deep, letting it remain all winter, and point it in with a fork lightly in spring.

**WOOD ASHES MINGLED WITH COAL** (*Idem*).—The ashes will be useful for the same, and a dressing to all kinds of flowers in the garden, but we should not think them valuable for plants in pots. The ashes are also excellent for Onions and Cabbages, and may be applied to all kitchen-garden crops advantageously. They ought to be sifted so as to free them of the clinkers resulting from the burning.

**PEAR TREES NOT GROWING BLOOM** (*Idem*).—The cause of the Pear trees not having more blossom this year than last, may be there being few spurs left after the prolific blossoming of last year, therefore few bloom buds were formed for this year; or it may be a result of inattention to summer pruning, and of want of watering in dry hot weather. Our trees on the Quince stock against walls are not very full of bloom, but those in the open ground are perfect bonquets. You may, although you have a less show of bloom, have more fruit this year than you had last.

**ROSES FOR PLANTING IN BEDS** (*Idem*).—We should order those we intended to plant in a bed to be strong, well-established, and not of the current year's propagation. What you had were not of the current year, but in the previous January or February; they were grown on in heat, and you had them hardened-off in May. We know that many such fail. The junction of the stock and graft is hardly complete, and the grafts go off from over-excitation or other extraneous causes. The plants are not based on the Manetti stock. We usually find them to do well. If you plant in May let the ground be well dug, indeed trenched, working in a liberal quantity of manure. Water freely in dry weather, give a sprinkling overhead every evening in dry hot weather, and the plants should prospered in flower in autumn, and bear good crops of fruit next year. We cannot recommend dealers. Twelve good Hybrid Perpetual Roses are: Lord Macaulay, Marcella Chantille, Victor Verdier, S. water Vaisee, Caroline de Sinal, Charles Lefebvre, Comte de Nanteuil, Baronne Preval, Duc de Rohan, Jules Margottin, John Hopper, and William Osceola.

**JACOBIDE-HOUSE MANAGEMENT** (*C. C. E.*).—The temperature of 120° is too much for orchard-house trees, better have it in the hottest days under 100°, by giving more air, or even shading the glass a little with wetted water outside the house. This will keep the only two parts affected by the whole house, when the crop is full and swelling, and watered with each water as the above, but the quantity stated would be strong enough for sixteen or eighteen gallons, and should be mixed clear with the other water. It is impossible to tell you how often to water. Lately we have watered trees in pots twice a week, and in the greenhouse two or three times a week, sometimes not once a fortnight. It depends entirely on sunshine and warmth. The soil should never be dry, neither should it remain wet like a quagmire. The medium must be observed. With a close house the fly allied to it is easily destroyed by tobacco, but

the plants must be dry and the smoke cool. Orchard houses are generally too open for smoking.

**BOILER** (*Boiler*).—It is of very little use to show a drawing, you can have no reliable opinion passed on it until it has been tried, for its merit will depend upon its heating more feet of pipe with less fuel and with less liability to leakage than other boilers.

**MUSHROOMS** (*J. L. H. W.*).—Mushrooms are attacked in the gills by another fungus, which has been remarked upon by the Rev. M. J. Berkeley at some of the meetings of the Royal Horticultural Society. Though the Mushrooms are the true garden sort, and in themselves quite wholesome, still this disease may render those so attacked suspicious.

**SALVIA SUCCHETII LOSING LEAVES** (*H. W. F.*).—We think the foregoing is the name of the plant of which you enclosed specimens to us. It requires a compost of two parts sandy fibrous loam, and one part leaf soil, with a free admixture of sharp sand. It is usual for the leaves to fall, and the plant has not come back since the last time it was cut and in an airy position, not watering often than the soil becomes dry, and then give enough water to run through the bottom of the pot. After flowering cut the plant down, making cuttings of the shoots, which strike freely in sandy soil with a little shade. The plant may be placed out of doors in summer, when it will do better than in the conservatory. The house will answer well for Camellias, Azaleas, Epacris, and you may have *Chrysanthemums* for autumn, producing flowers up to Christmas, and a few plants of *Deutzia gracilis*, *Myrica speciosa*, *Gilly of the Valley*, and *Salvia* *arvensis*. Hardy plants do well introduced to Christmas. *Cyclamen* are also good; you may raise them from seed, likewise *Cinerarias*. Violets are also desirable. There are few plants that you can raise from seed that flower at the time you name, the fullest five months of the year. *Primulas* you have, and we would add the *intermediate* Stock.

**ERADICATING BISHOPSTOE** (*J. T. S.*).—It is a very noxious weed, quite as difficult as Couch Grass to eradicate. We fear we cannot help you to a more speedy plan of getting rid of it than by taking up the top 4 inches of soil, as you propose, beating all the soil out of the beds that you can, and then burning them. If left a few days to dry, the soil will come from the roots freely. It is *Egopodium Podagraria*, sometimes called Gout-weed.

**CUCUMBERS DISEASED** (*J. F. C.*).—We are unable to help you with this plague; but we think your soil, from the fruit clearing, is very rich, and caused the disease, and that it is full of decaying matter. The cucumbers escaped the disease, so far, in houses, pits, and frames, but out of doors it shows itself every autumn. Grow the plants in loam from turf without other admixture, and keep the soil moderately dry, but sufficiently moist for growth, giving an abundance of air, especially during the early part of the day, and a moderate amount at night.

**PANSY SEED NOT GERMINATING** (*An Old Gardener*).—The seeds being good, the plants ought to appear in about three weeks. Perhaps you cover the seeds too deeply with soil. They ought not to be covered more than the breadth of an egg. If you do not get them to germinate more surely if the pansy be placed in a gentle hotbed, removing them, as soon as the plants appear, to a light, airy position in a cool house or frame.

**SHORTENING PEAR-SPUR SPURS** (*Idem*).—You may now cut back the very long spurs, and such as are weak, leaving, however, some of the shorter to appear, and the same; and if it is full of decaying matter, we would leave until early in winter—when the leaves fall is the proper time. We fear, however, that the trees are old, and if so, you will do little good by cutting-back the spurs; leave as much young wood as you can, keeping it well watered, and induce the production of spurs. You will find full instructions for pinching or summer pruning in Mr. Rivers's "Miniature Fruit Garden." Peaches may be summer-pruned or pinched with advantage, but not to the same extent as Pears.

**DIVIDING DARLIE TURNERS** (*Centurion*).—In potting-off the shoots it is not necessary to preserve a complete tuber to each. It will be enough if each eye have a small portion of old root or tuber attached; indeed, it is not necessary for the shoots taken off to have even that. They may be taken off close to whence they proceed, and the cuttings inserted in 3-inch pots, placing them in a hotbed, until they become well rooted and are growing freely, then harden them off. You may even with a small portion of tuber pot them, as we have done by the hundred, in 3 or 4-inch pots.

**PLANT PRODUCING DAST** (*Idem*).—Dast in the Russian language means the inner bark of a tree; the inner bark of the Linden or Lime is used for making the mask of Cuba East is the inner bark of a Malvaceous tree (*Parium elatum*).

**BROAD BEAN FOR EXHIBITION** (*Idem*).—Monarch or Johnson's Wonderful is good, but some prefer the Green Windsor.

**MARROW PEAS** (*Idem*).—Marrow Peas are different from the Marrowfat of old. The Wrinkled Marrows of the present time are identical in shape with the Marrowfat, but they are not the same variety. We think the change desirable; Marrowfat is not a nice term. The flies you sent were not the Pear fly.

**MYOSOTIS FOR SPRING BEDDING** (*B. S.*).—The best blue for bedding is *Myosotis sylvatica*, the Cliveden variety preferred; the best white, *M. alpestris* alba. They should be sown from now to the end of June, in light sandy soil, and in a slightly shaded situation, and be watered in dry weather. When large enough to handle, prick them out in beds in a sheltered sunny situation, and in light soil enriched with leaf soil. Place them about 3 inches apart. Plant out in autumn or early in spring with balls.

**HONESTY SOWING** (*Idem*).—Sow it from now to the end of June in good light soil in an open situation, watering in dry weather. Prick it off when large enough, and plant it out in autumn where it is to flower. It usually flowers from May to July. The names of the plants are: 1, Ribbon Grass, *Phalaris arundinacea*; 2, *Kernia japonica*.

**SEEDING FLOWERS—SALADS** (*Idem*).—We have no objection to your own taste in selecting the bedding *Perigoniums* and *Verbena* needed for the supply of twelve beds. With a greenhouse heated by hot water the cuttings inserted in autumn ought not to have been all dead, thus forcing you to go to the market—that is to say, if you could not find room for them in the greenhouse. For particular reasons,

such as not interfering with the outline of flower beds, we seldom take cuttings earlier than the end of September, but as you are rather late, perforce and your helper needs to be told, we would advise you to take off your cuttings early—in the end of August, so as to have them struck and established in small pots before winter. Then, if kept from frost, air given in suitable weather, and water when required, they can scarcely go wrong. At a temperature of from 40° to 45° at night will suit them, with a rise of from 5° to 10° from sunshine, but in severe frost we would rather have the house at from 35° to 38° than above 45°. The want of winds in winter and spring, when you have two large frames and hand-lights, must be owing to want of deficiency of directions, or to the plants being otherwise occupied. Mustard and Cress could be had constantly in such a house if sown every eight days. Some portable boxes might be filled with Lettuce, and set in the greenhouse to hasten them on. Endive would stand well in a similar position, and of course until Christmas. One frame might be filled in November, partly with nearly full-grown, and the other part with half-grown Lettuce; the other frame with cress, and ones to grow slowly all the winter to come in early in spring. The hand-lights might be filled with cress, and the plants in the frames, the ones left, to come in before those planted out. Of course the frames must be devoted to this purpose, and protection in addition must be given to them in frosty nights. The very protection of the frame makes the plants more tender, and therefore more liable to frost, when we have known Lettuce in a frame destroyed by frost, when plants at the front of a wall or fence, or even exposed in the open ground, passed uninjured. Recollect that with early sowing, as Lettuce, one night's inattention in severe weather may render all previous labour nugatory. When we know more definitely what you want, we will do our best to serve you.

**FLOWER BEDS (Lilian).**—There were no flowers enclosed in the letter. Then as to the questions—the finest flower for a white bed, seed to be sown now, is the White Candytuft, but it will not last long. The next best is *Alyssum maritimum* or Sweet Alyssum, which with a little cutting will last the season if the plants are sown in a cold frame. *Nemophila insignis alba*, and *Nemophila atomaria*, make the dwarf and pretty, but they would not bloom so long as the *Alyssum*. *Silene pendula alba* would also do. For a month or six weeks the White Candytuft would be best, and you could have a succession of sowing in a cold frame. As to turning out pots after the first began to wane. We do not know *Linum candidissimum* and, therefore, cannot say if plants from seed sown now will bloom this summer. *Linum grandiflorum rubrum* or coccineum would do so, but to have a succession of seeds sown now, it would be best to sow in pots under protection, and turn out the pots of plants when pretty strong. *Linum flavum* makes a pretty dwarf yellow bed; the seed sown now will not produce plants that will bloom this year, unless they are assisted at first with a mild hotbed. It blooms best from plants raised the previous season and kept over the winter. The fourth question, "Is the enclosed plan effectively filled?" is more difficult to answer, as we do not quite understand the arrangement. As we have nothing placed before 3 and 4, and 5 and 11, we do not know what you have, and, therefore, must leave it. Our main object is to place a circle of *Nemophila* massive for the other figures, six ovals, and six circles—that is, twelve clumps round the central one. Your mode of pairing these is correct; the central circle would be better if it had scarlet for the centre, and a broad white margin. Then, as to the circles, we would make the other pair of yellow *Tazetta*, we would make the other pair of crimson or scarlet; and we would have three pairs of circles—one pair with blue *Lobelia*, one pair with purple, as *Verbena*, and one pair with *Viola cornuta*, which you have. These are the best for the circles. The circles would all be improved with a line of contrasting colour along the centre. These are the landmarks to plant simply and well, by keeping bright colours to the ovals, and subdued colours to the circles. We have no doubt your own proposed arrangement would look very well, and you depend mostly on seeds, you would have done better to have sown earlier and protected with pots or other means, as frequently referred to.

**DISEASED PEAR LEAVES (F. E. M. and A. Suberger).**—The rusty affection on the leaves and shoots of your Pears is not at all an uncommon occurrence. Many of the shoots of your trees are affected in the same manner. We have searched the cause to cold, cold winds, and a little unhealthiness of the flow of the sap. It is of much the same character as the blister or curl of the leaves of Peach trees. In a short time, should the weather prove mild, the trees will outgrow it. Trees growing in cold damp soil are also, we have observed, somewhat subject to it.

**WOOD ANTS (Nix & Co.).**—To destroy or dislodge the huge colony of wood ants that have taken possession of the fissures of a limestone rock, we know of nothing better than pouring naphtha into and round the fissures. Tar would also, we presume, be effectual. If you cannot do this in your neighbour's ground, naphtha, tar, and one of the many species of turpentine with tar and oil, will prevent them climbing up the wall. The oil keeps the tar moist and sticky.

**INSECT IN ORCHARD HOUSE (Oak Bank).**—It is one of the Weevils, *Cureulio picipes*. It feeds at night, and your only remedy is then to place a white cloth beneath each tree, which you have secured two enemies. If this be repeated for a few successive nights you may subdue the marauders.

**INSECTS (Centurion).**—The flies seen hovering in the air and darting about with a jerky kind of flight, are the common Bombylium major, which is parasitic in the larva state on other underground living insects. They are quite harmless. We have seen them in the garden, but not eating the young blooms of the Pear. The largest is a saw-fly, *Dolerus opacatus*, which may possibly eat the pollen of different flowers; the two smaller are *Ephialtes*, *Phaenocarpa*, and one of the many species of two-winged flies belonging to the genus *Anthomyia*; both feed in the larva state on vegetable matter underground, and we believe they are quite harmless in the fly state—W. (F. Manning).—The insect eating your Pear leaves in all sorts of places, is the *Phyllocolpa* or Pear leaf-miner. We know of no remedy but paring and burning the soil and the crop on which it grows.

**NAMES OF PLANTS (H. G. M.).**—The Edible Morel, *Morchella esculenta*, W. H. Conington.—It is a native of the United States. The Chinese Apple, *Malus baccata*, is a native of China, and was first cultivated in this country by Dr. Fothergill, in 1780. (*M. H. C.*)—*Amelanchier Botrypanium*. (*H. D.*)—1, *Erica campanulata*; 2, *E. verticillata*; 3, *E. persicifolia* nana. The semidouble Polyanthus was regarded as good. The tendency to become semidouble is by no means new, several varieties being already in cultivation.

(C. Beck).—*Polystichum aculeatum*. (*H. W.*)—1, *Hovea Colasi*; 2, *Daviesia ulicina*; 3 and 4, Send again when in bloom, not recognised by us in present condition. (*Stafford*).—*Calceolaria Fothergillii*. (*James Reid*).—Apparently an upper shoot of *Cupressus Lawsoniana*, or if not, of a closely-allied species.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### FOWLS FOR LIMITED SPACES.—No. 2.

To keep birds in good health and condition they must be regularly fed, not crammed one day and neglected the next; for remember, they are entirely dependant on you for their food, as they have no chance of picking up a living like those which have their liberty. Too much food should not be given at one meal, to cause it to be left and trodden under foot. Food may be seen lying about, still it is possible for the fowls to be hungry—perhaps they are tired of that particular kind of food, and require a change. You should try them with some dainty morsel, as a little fresh bread and milk, some crushed bones, cooked meat, as a little hempseed, a handful of good wheat, or even a broken oyster shell or egg shell, if neither of the last two are easy for them to get at, and I venture to say the fowls will seldom refuse any of these if they are healthy. People often say, "Oh, my fowls are too fat to lay." I beg to differ from them; at least, when they allude to Spanish, for I have never, in the whole of my eight years' experience, found a hen of this variety become too fat to prevent her laying, and I think it is hardly possible to over-feed, or to give them too nourishing food. If they will not eat one thing you must endeavour to tempt them with another, just as much as they will eat at once. Above all, let their runs and the straw amongst which their corn is thrown be quite clean; if otherwise, they must eat some of the dirt. Disagreeable smells will be sure to hang about the straw; these will very quickly be followed by all kinds of diseases, and your stock will soon be destroyed.

I always let the first meal consist of either barley alone or mixed with Indian corn, occasionally wheat. I prefer giving them corn first, as if fancy it affords more warmth than soft food, especially during the winter months. They should have their first food as early as possible, for they are up and about almost as soon as it is day. This is the time when they commence plucking one another's feathers, if there is no food for them. They are hungry and fresh after their night's rest, and naturally anxious to satisfy their hunger, and so begin eating each other. I have had them almost entirely stripped of their feathers in one morning when it has been late before they have had their breakfast, more particularly in the case of chickens, when they get about three months old, and their feathers are young and soft, and full of blood. At the second meal, given about the middle of the day, they have soft food, as barley meal mixed with milk or boiled water—I do not like to mix it with water, as it has a tendency to relax them—or bread soaked in milk or water. When able I always give them milk, for they then seem to thrive much better, and it keeps them in splendid condition.

The barley meal should not be too soft, but so that it will crumble easily in the hand, or when thrown on the ground break into small pieces. If the floor is at all dirty, put the food into a saucer, plate, or on a piece of board, so as to keep it free from all injurious matter. At night the hour depends upon the season of the year they have wheat, barley, Indian corn, or if you wish to give them an extra treat, a little hempseed mixed with any of these. Some fancy that in giving corn the last thing before the fowls go to roost, it causes their crops to become bound. I have never found it so, but believe it is very beneficial, as it takes longer to digest, and so keeps up the warmth, and nourishes the body a much longer time.

These foods should be supplemented with a plentiful supply of all kinds of green stuff, and vegetables either cooked or raw, any refuse or leavings from the table, occasionally a little cooked meat, or a bone with a little meat on it, as they are very fond of picking a bone, and it will amuse them a long time—a thing you must endeavour to do as much as possible where poultry are kept in confinement. The bones should then be crushed, and they will very quickly be eaten with evident relish. There should always be plenty of clean fresh water easy of access. Use no artificial foods, as they are quite unnecessary. Have nothing to do with bread soaked in old ale; it may stimulate for a time, but ultimately it injures them, and to say the least, it is a most unnatural food for fowls, but do

not be afraid of using too much milk—if you have plenty, let them have it to drink.

Information as to the effects of mangold wurzel on fowls was asked in a recent number. I have often given them a mangold to peck at, for they are very fond of it, and I have never found it hurt them in any way. In the winter, when all kinds of green stuff are scarce, I find this an excellent substitute, also a Swede turnip thrown in whole. I have never noticed the combs of fowls turn black after eating it, but I certainly think both the mangold and turnip greatly assist in preventing feather-eating. It requires a considerable amount of exertion before they can peck much off either, it gives them something to do, and we must try and keep them occupied when we have them in confinement with little exercise and good living.

I intended to have said something about diseases, breeding chickens, and preparing birds for exhibition, but must leave that for some future time.—X.

### BROWN-BREASTED RED GAME BANTAMS.

Amongst all the articles and correspondences which have been published in this Journal respecting useful and ornamental poultry, there is one remarkably pretty little variety which has never yet attracted attention—I refer to the beautiful Brown-breasted Red Game Bantam. As in large Game the Brown Red is the most stylish, and takes the lead at many of our principal shows, I think the model of the breed would, if cultivated, in a short time surpass the Black Red Game Bantam.

It cannot be denied that hitherto my favourite has been sadly neglected. One lady only has exhibited birds which have endangered the position now held by the exhibitors of Black Reds. But I have rejoiced to see at the shows held within the last few months a pen here and there of first-rate Brown Reds. The breed is evidently improving, but sadly needs encouragement from the class of men who hold the fate of nearly every kind of domestic poultry in their hands—committeemen.

It is a manifest injustice to class the Brown Red, a breed yet in its infancy, with the Black Red. At any large show there are to be seen from a dozen to a score of really good Black Reds, whilst until very lately it has been quite the exception to see one pen of first-class Brown Reds. The classes for Game Bantams at the present day usually are—1, "Black and other Reds;" and 2, "Any other variety." Let these be altered to—1, "Game Bantams, Black Reds;" and 2, "Game Bantams, Any other variety," and I venture to predict that nearly twice as many Game Bantams would be shown as there are at present. There being so few Brown Reds exhibited under the present arrangements, the change suggested could scarcely prove a loss to the committeemen, who, by the way, are gentlemen who look very sharply after the main chance, and in order to obtain any alteration in the classes it is necessary to convince them they would be gainers by it. If the Brown Reds were to compete, as I propose, in the Game Bantam "Any other variety" class, they would have to fight their way against Duckwings and Piles. Now, the three last-named varieties would have pretty nearly equal chances. Not one of them can be said to be in a much more advanced stage than the others: therefore it would not frighten the exhibitors of Duckwings and Piles to put the Brown Reds in competition with them, and, consequently, there would be no decrease of entries on the part of these gentlemen. It is, of course, entirely unnecessary to do more than say that the Black Reds could not be lessened in number by transferring the Brown Reds to another class.

In conclusion, I would say that if the committeemen who read the above remarks would but give the matter a few minutes' serious consideration, they would see the advisability and advantage of the proposed changes, and a beautiful breed of Game Bantams now undeveloped would soon muster in such numbers as to require a class for themselves.—GALLS.

### FRENCH FOWLS' CLASSES AT SOUTHAMPTON.

It is proposed to institute this year at the Southampton Poultry Show two classes open to the French varieties, one for adults, one for chickens. I am authorised to inform those who fancy French fowls, that the Committee of the Southampton Show will supply second and third prizes, provided exhibitors of the breeds in question will raise by subscription the sum of ten guineas for the purchase of two silver cups, one for each class. I shall be happy to receive subscriptions towards the purchase of these cups.

For my own part, being a Houdan fancier, I feel somewhat aggrieved that Houdans should not be honoured with a separate class, not to say separate classes, at every show of importance throughout the kingdom. Nevertheless, hoping for better times, I intend to subscribe two guineas, in furtherance of the interests of French fowl fanciers generally, towards establishing the two open classes. Is it unreasonable to hope that the remaining eight guineas will be forthcoming from the pockets of the many well-to-do fanciers of the French breeds who occasionally bewail in print the want of attention paid to their pet birds by the executive of poultry exhibitions? By offering good prizes for competition, and by entering plenty of birds to compete, we shall prove to committeemen that separate classes may be offered for the French varieties without the risk of pecuniary loss, and alterations and additions will speedily be made in the prize lists of most poultry shows.

French fowls are striking in their appearance, full of character, if not absolutely handsome, and their economical merits are undeniable. Their size is large, their bones fine, their flesh laid on in the right places, very white, and delicate; their eggs extra-sized, very sweet, and in the case of Houdans, at any rate, almost always fertile. I appeal to the poultry-loving public. Do not such birds deserve encouragement?—H. SEYMOUR FRASER, *Headley, Hants.*

### ANNALS OF MY POULTRY-YARD.—No. 3.

I DESCRIBED in my last notice the rule shed which was constructed to protect my poultry in stormy weather, but as yet I have given no description of my poultry house proper. It was in no ornamental little mansion, created for the express purpose, with all the most perfect modern appliances, with chambers for laying, chambers for sitting, chambers for rearing, and an elegantly furnished chamber for my lady to sit and rest from the fatigue of strolling down her garden while chatting to her well-paid poultry-woman, but in a common little "cote" over two pigsties, that the whole of my laying and sitting took place. In this little chamber, 11 feet by 7, which was only 3 feet 3 inches high in front and sloped down to 10 inches, I have collected several thousand eggs, hatched many hundred chickens, and hope to hatch many more. A snug corner of my carpenter's shop has often kept early chickens warm during long cold nights in February and March; and the same fire which warmed my old blue-pot has cooked many a dainty for the first hatch of the season.

By April one of the voracious occupants of the pigsties had become bacon, and my chickens triumphed in his den till old enough to perch amongst the older fowls.

In this my third year my stock was only increased by five, making in all nineteen; of these sixteen were Hamburg and Cochin hens, the remaining three were cocks. I very soon reduced my stock by one of the cocks—a long-legged, weak-jointed, Cochin bird—who looked so like an overgrown apprentice that I thought it best to put him in the stock-pot. During this summer I had the assistance of a very knowing coachman, from whom I gained much useful information, but under his advice I must confess an act of cruelty was practised which I will never again sanction. One of the Cochins was entirely unsuccessful in hatching any of her first sitting, so she was set again, as custom allows, but again she had no better success, and a third time did this faithful creature begin her task of incubation. She was rewarded after her patient sitting of nine weeks by eight chickens; but the poor thing was much weakened and emaciated, though she very soon recovered. I cannot condemn this practice too strongly, and I have never since allowed it.

In all I had seventeen sittings, from which only 114 chickens were hatched; but the most truthful record of my transactions is in the balance sheet.

Dr.	£ s. d.	Cr.	£ s. d.
13—Stock of poultry at beginning of year, valued at 1s. 6d. each .....	1 8 6	53 Chickens killed at 1s. 6d. ..	3 19 6
1 Sack of barley .....	1 3 0	145 Eggs at 1s. a-dozen ..	15 0 0
2 Sacks thine flour .....	1 14 0	less 253 used for sitting ..	3 19 6
1 Sack of Indian meal .....	0 8 6	19 Pullets sold at 1s. 6d. ..	1 8 6
1 Sack of Indian meal .....	0 8 6	34—Stock of poultry in hand at end of year, valued at 1s. and 1s. 6d. each .....	2 5 6
Wheat and medicine, 2s. ..	1 2 0		
	£6 4 3		
Profit .....	6 8 9		
	£11 13 0		£11 13 0

Another great reduction in the proportion of profit occurs this year; and it would seem from an examination of my last



night, or *vice versa*, just which happens to be off the nest; or if the bird which was flown in the morning is off the nest at evening fly, it will readily go to the nest if its mate is taken off. On no account would I let one of my flying birds miss a day without being flown once. I need not here repeat what I said in my first communication as to style of flying, tumbling, &c. After the birds have had their fly they should be allowed some time to run about; and this is the time to let out the young birds for exercise, as well as to familiarise them with their home.

Do not be too impatient to fly young birds. As soon as they are able they will be ready enough to go. There will be no difficulty in starting them. No particular age can be given at which to start them flying. The fancier must use his judgment in this matter; but they are generally ready when the feathers have grown upon the nostril. The best plan is to commence training them as soon as they begin to dart round the buildings for their own amusement. Turn out all such birds just before the flight comes down to alight after a fly. They will soon be amongst them, and fly a round or two before the old birds drop. As soon as they begin to fly steadily with the kit, which they will do after two or three such essays, their flies must be gradually increased until they are allowed to go the whole time. After they have had some little practice, it is best to keep one or two old birds down in order to start with them, and get them up to the flight. Young birds will always be found ready enough to fly; all that is wanted is a few good old birds to keep them steady, and to take them up. Well-bred young birds very soon commence tumbling, and then go on progressing through the various stages of mad tumbling, &c., until they roll. It is not well, however, for young birds to be extra good at an early age. It is a sign of too high breeding, and they generally finish by rolling down. Sometimes a bird does not "turn out" till it has attained a good age; but if it is well bred it is almost sure to show it sooner or later, most probably when it begins breeding.

And now a word or two as regards feeding. Always feed inside the pen, as by that means the birds can be shut up at pleasure. Feed twice a day during the breeding season, and once a day during the rest of the year, giving just as much as they can eat up clean and no more. The best way is to feed till they commence drinking, when they have had enough. Of course if a bird has a pair of large young ones to feed, it will require more food; and the extra can be given in his breeding place. On no account leave food lying about after they are satisfied. Use good sound old grey peas as the main food, giving a few handfuls of good English wheat occasionally as a change. As a mixture the one recommended by "READER," is the best—namely, grey peas, wheat, and vetches. I have an aversion, however, to giving a mixture of various kinds of grain, or too often changing their food, as the birds are apt to get dainty, picking out just what they fancy, when they do not eat so heartily, or feed their young so well, as they do when kept mainly to one kind of grain. Such is my experience. Flying Tumblers should never be fed out of a hopper, and no food should be given them before flying them, as is also recommended by "READER." Birds fed as I recommend do not want "a few vetches before flying to support them." Such a plan will only make them lazy, or cause them to roll down, in consequence of the food in their crops choking them. Keep a lump of salt and a pan of crushed old mortar constantly in the pen.

And now I wish to make a special feature of the mainspring of nearly all disease—the water fountain. Let this be constantly cleansed, and the birds daily supplied with pure water. Always see that the water is clean and fresh. This is of the utmost importance, if the birds are to be kept healthy. I am sorry to say it is a thing, next to cleaning them out, most neglected by fanciers in general. It is thought as long as they have water all is right, no matter how dirty it is. I have seen fountains in lofts I have been into in the filthiest state; the owners complaining of their birds being rumpy and cankered, and wondering at such an inevitable result. Many persons use an earthenware pan about 6 inches deep by a foot long, and oval in shape. This is preferred to the fountain, because it can be well cleansed every time the water is changed. It should be covered with a board, or placed under a shelf in such a manner that the birds cannot dirty it, leaving just space sufficient for them to put their heads in to drink, and a brick is placed in front for them to stand upon. If the fountains are used they must be cleansed every few days with coal slack or shot, to prevent them furring, or getting coated with slime.

It is not my intention in this paper to give a long catalogue of diseases and their cures; but in order that my remarks may be in some measure complete, I will briefly allude to the two principal diseases with which Pigeon fanciers in general have to contend—namely, canker and roup. I shall not discuss the question as to whether these diseases are contagious or not. Suffice it to say that my experience has taught me they are. At any rate, I consider it the wisest plan always to take a sick bird out of the pen, as it is better and more regularly attended to, and in consequence cured more quickly than if left amongst the other birds, and any possible chance of contagion is avoided.

A point I would lay particular stress upon in reference to canker, is on no account to pick or cut the sore. The more the place is made to bleed the worse it gets. There is an absurd notion prevailing that the place is a cancer, and must be effectually cut out to be cured. It is a disease very easily cured if fanciers will only keep their fingers and penknives from it and have a little patience; by doing which, and dressing it with one of the lotions I recommend, the bird is sure to recover. I have cured dozens of the worst cases for one or another; the only bird I ever lost through it was one I cut. Dress the wound twice a day with a solution of sulphate of zinc or copper (use the crystallised), about half an ounce to a quart of water. Merely wash the bird's mouth or wherever the sore is, with a flight feather. Of course, the lotion must not be used too freely in the month; very little will be quite sufficient. Another remedy, and a more searching one, is the following—Get from any druggist a pennyworth of gypseum, and dissolve in it a bit of bluestone or sulphate of copper about the size of a small horse bean, and dress the place with a flight feather, using a very little of the solution, which is very strong. This, I think, the quickest cure, but care must be exercised in applying it. The former, however, is the safest, and does not pain the birds in its application.

For roup, if only a slight case, such as a sneezing and running at the nostrils, merely wash out the mouth with the zinc solution, and give a few peppercorns occasionally. The application will cause all the phlegm to come away as soon as it is applied, and the bird will very soon be well; but should the case be a very bad one, in addition to using the solution daily I would give a pill made as follows, every other day:—Take Cayenne pods and crumble them up in the fingers, put an equal quantity of jalap, and mix it into a stiff pill of the ordinary size, with a little butter or lard. Of course the bird should be kept warm.

These are all the diseases I think it necessary to allude to here. The fancier, however, will have very little need to avail himself of these remedies if he only follows out thoroughly the main points of my remarks, as to always keeping the pen free from dung, flying, and feeding regularly on good food, and above all to keep them constantly supplied with pure fresh water, and letting them have a vessel they can wash in at pleasure when they are out.

I may, perhaps, mention in this place, that the hens should never be flown when they are with egg. If they are they will most likely roll out their "egg bag," as it is generally termed by the fancy. I have no doubt the phrase will be readily understood without going into a scientific explanation. This I have known to be successfully replaced; some have been cut away, and the hen been as good a flyer as ever, but, of course, useless as a breeder. Either of these remedies is most disagreeable, even if they should by chance be successful, so that for my own part I would sooner put the bird at once out of pain by killing it.

I doubt whether my remarks may not be considered too tedious and lengthy by some, but I have endeavoured as far as I am able to exhaust the subject. Should there, however, be any points that are not clear, or any that are overlooked, upon which I can give any information, I will give it with pleasure, on their being pointed out.—H. T., Birmingham.

A HEN AND HER PUPS.—A correspondent of the *Surrey Standard* writes:—"An extraordinary freak of Nature can be seen at the keeper's kennels at Stanmer Park, the seat of the Earl of Chichester. A common domestic hen, two years old, has been in the habit of laying her eggs in a dog-kennel, in which a hagle bitch has a litter of six puppies now six weeks old. She wanted to sit; she was shut up for ten days. Now let loose, she has gone to the kennel again, and taken charge of the pups as a mother would do with her chickens. She covers them with her wings; she scratches about so as to teach them to feed; she calls them, the puppies follow her, and she shows

fight to any one who touches them, but the poor thing cannot nourish them."

### CANARY CLASSES.

In answer to Mr. Blakston, in the Journal of the 7th ult., replying to my remarks on his notice of the Crystal Palace Canary Show, in which I stated I thought he had omitted a very important subject, my object was to call his attention to, and obtain his opinion, or that of any of the fancy, on the propriety of not classing the Ticked and Marked Belgians together. I am glad to see that he agrees with me in this respect. I contend that the Clear and Ticked should be shown in one class, and would propose the following classification:—

Class 1.—Clear and Ticked Yellow Belgians.

Class 2.—Clear and Ticked Buff ditto.

Class 3.—Marked or Variegated Yellow ditto.

Class 4.—Marked or Variegated Buff ditto.

I am of opinion that unless they are classed in some such way, the Belgians will not pay their way, as the entry is so small, generally leaving no margin of profit. I think if the entrance fee were 2s. 6d. each cage, and if there were three prizes, there would be more competition, and shows would be much better; but this I will leave Mr. Blakston to judge or confer upon.

I do not want to be at variance with Mr. Blakston or any of the Canary fancy, but simply urge them to be up and doing, and see that shows are carried on in an upright manner, both as respects managers and exhibitors. Unless we have proper and just classes for the exhibitors we shall always be under a cloud of dissatisfaction. If we do not have proper classes, how can we expect exhibitors to show their birds honestly and free from paint, &c.?

With respect to the annoyance in not receiving catalogues properly, since I forwarded my last letter to your Journal I have to complain of not receiving one from Leeds until I wrote for it, but as it was the first show I can excuse that. There is no doubt about the Sanderland catalogue having been delayed somewhere, for after writing about it I received two, which shows that one had been delayed; but from the Palace I have had neither catalogue nor money.

In conclusion, I wish Mr. Blakston would state if there be any objection to showing hens in classes by themselves. I contend there are more good hens bred than good cocks. If hens were shown, I am of opinion that we should have a better chance of improving our breed, and should effect more sales, there would be better and larger shows, and the fancy would be more encouraged and delighted. I will leave the scale of fees and prizes to Mr. Blakston's more able hands, and hope to see him at our next show, when we will show him a model schedule and exhibition.—W. HOLMES, Canal Street, Nottingham.

### GRATE MEETING OF GERMAN BEE-KEEPERS, HELD AT NUREMBERG, SEPT. 14TH, 15TH, AND 16TH, 1869.

(Continued from page 332)

THE CHAIRMAN then stated the next question for discussion—

10. WHAT PRINCIPLES SHOULD BE KEPT IN VIEW IN BREEDING?

—Mr. Schenfeld opened the discussion by remarking that all he had to say was founded on practical experience, and not on preconceived theories. He then stated that he could not agree with Dzierzon in looking upon the Italian bee as a breed properly speaking, which would imply cultivation, whereas it is an independent naturally existing variety. The same rules must hold good with regard to improving the race of bees as of sheep or horses, where the best breeds were not pure natural varieties, but mixed, deriving their good qualities from various sources. As regards the differences noted between the characters of the Italian and the black bee, they seemed to diminish in proportion to the length of time since the introduction of the former, but this he attributed rather to the improvement of the latter by the admixture of fresh blood, often without the apiarian's knowledge. He also argued from the fact that different stocks of either variety often exhibit such contradictory dispositions, that we must still aim at producing a breed which shall be constant in these respects; and that by always choosing the best stocks possessing the desired character, a breed might be raised in which these advantages would be permanent, exactly as in the case of all other animals. The first point to be considered in a good stock is its power of producing honey. This, then, is the first principle to guide us in breeding bees. But breeding in and to may cause a stand of bees to deteriorate, in which case fresh blood should be sought.

A second means of producing the race we wish is the easier and shorter plan of crossing varieties until the desired breed is attained. It is for this reason still important that the Italian race should be bred in perfect purity as by Dzierzon, Dathe, &c.; but we must cease

to value a queen for her beauty instead of for her productiveness, and then no long time will elapse before what is required will be supplied.

Question 2 now came on for consideration.

2. HOW IS THE LARGEST HONEY HARVEST TO BE OBTAINED FROM AN APIARY?—Mr. Bahrs considered bee-keeping a most profitable pursuit, but requiring certain qualifications in the person who would follow it.

1. He must thoroughly understand the Dzierzon system (movable combs, &c.), and be skilful in handling bees; in a word, he must be a master in bee-keeping, both in the theory and practice.

2. He must provide himself with cheap and easily-managed hives.

3. The number of stocks must only be increased so long as the number the bee-keeper has resolved upon possessing is not reached. Till this point, however, is attained the fall honey harvest must not be expected. Artificial swarms are recommended, as affording better opportunities for improving the breed.

4. The centrifugal comb-emptying machine must not be wanting.

5. All comb, drone or worker, must be used; and only quite old useless pieces are melted down for wax.

6. Very few tools are required; the speaker using comb frames makes use of neither pincers, pipe, gloves, cap, or any such thing, but a good cupboard or box for preserving combs is almost necessary. Mr. Bahrs' stand consisted at the time of the meeting of sixty-two hives, having in the spring been only thirty-five, and was again to be reduced to thirty-four in the autumn, when any superabundant quantity may be removed as well as in the autumn. The remainder of his remarks differed but little from the usual directions for the summer management of similar hives.

The next question was—

3. WHETHER THE CENTRIFUGAL COMB-EMPTYING MACHINE SHOULD EXERCISE ANY INFLUENCE ON THE SIZE OR OTHER ARRANGEMENTS OF THE HIVE?—Mr. Dzierzon remarked that it was now of less importance than formerly to preserve a part of the hive specially for the production of honey, as this machine would extract pure honey from a comb partially filled with pollen. Consequently there is no longer any special advantage in having a division in the hive; and inasmuch as the same combs can be emptied over and over again, a smaller hive will supply as much honey as a large one used to do, whilst the oldest and blackest comb furnishes as clear honey as a new one, with the advantage of being much tougher, and therefore less likely to be injured in the machine.

After this speech the President proposed the names of the judges for the prizes to be awarded to the various objects exhibited, and the sitting was closed, and the assembled apiarians adjourned to dinner.

One of the objects which Major von Hruschka's Italian colony which had never been enclosed in any hive. It was now disposed of by lottery, and its present possessor announces its safe arrival at his home, and that he has terminated its special interest by hiving it. Major von Hruschka promises, however, further particulars concerning its early years. The most striking feature mentioned by the new possessor is its excessive tameness. The combs being built on bars which would not fit his hive, were seen shorter without exciting the bees' anger, nor did they resent having the lid nailed on the box which is to form their future home; while, as a proof that they were perfectly well, within an hour and a half of finishing his task he saw them bringing home honey and pollen.

The next question was—

WHAT IS THE BEST MATERIAL FOR BEE-HIVES?—Mr. Lotter remarked that wood and straw both have their disadvantages, the former being apt to swell and shrink, besides warping, while it is very difficult to make straw hives with sufficiently flat sides for working conveniently with moveable frames; besides which, the present hives cost too much. The speaker had not had time to work out all his ideas, and so could give no definite results. He was followed by Mr. Rusche, who had succeeded in making cheap and satisfactory hives of a mixture of four parts straw and, one part slatted lime, pressed in a mould of the requisite size. A natural sequel to this discussion was the question—

HOW CAN A SUITABLE HIVE BE MOST EASILY CONSTRUCTED OF STRAW?—The only practical answer to this question was contained in the speech of Mr. Futterer, who stated that by a powerful press straw hives were made of the desired shape, and could be sold cheap. But the press was a costly piece of apparatus. A more practical discussion followed the question—

WHAT ARE THE CHIEF REQUISITES FOR PRODUCING EARLY SWARMS?—Dr. Ziwawsky, of Brunn, remarked that the first condition is having strong stocks, and for this a young, healthy, and fruitful queen is requisite. The second condition is a sufficiency of wholesome food. Hives which fulfil these two conditions will have young brood early, and therefore as a rule be sooner ready to swarm. Mr. Dzierzon observed that the greatest incentive to swarming was warm moist weather, and that the cause of bees swarming more freely in one year than another lay chiefly in the difference of the weather. Bearing this in mind, the bee-keeper would do his best to follow this principle. He would feed his bees in spring with diluted honey, and keep a constant supply of water near the hives, so that the bees may be encouraged to breed, and not suffer any interruption through want of water.

Dr. Preuss was not present, but a paper was read containing some

remarks contributed by him on this subject. 1. Early swarming is hereditary, and for this simple reason, that an early swarm is much more forward in its first season, and therefore, under like conditions in other respects, sooner ready to swarm next year. 2. Fully built combs also lead to early swarming. 3 and 4 Are the well known requisites of strong stocks, and a plentiful supply of honey. 5, Protection against the prevailing winds, especially if from the north or east. 6. A position open to the southerly sun. 7. Fires of a material easily warmed through by the sun, hence straw is better than wood for this purpose. 8. Plenty of water. Lastly, whoever has no swarms by midsummer-day should at once make them artificially.

The next question discussed was—

HOW MAY A STRANGE QUEEN BE MOST EASILY AND SAFELY UNITED TO A STOCK?—Major Von Hruschka recommended sprinkling the bees by means of the little glass instrument for blowing perfume spray, to be obtained at most chemists' with a mixture of agard water and essence of peppermint, to half a glass of this sugar water a small thimbleful of peppermint. The spray should be blown in at every opening and over all the combs, so that if possible every bee may be touched by it: the queen is then sprinkled as well, and allowed to run loose upon the nearest comb. This process had succeeded with him between seventy and eighty times without one failure. In the case of ordinary hives the bees should be driven into an empty hive, the old queen caught, and the combs and brood thoroughly sprinkled as well as the new queen, which may be allowed to enter the hive with its former possessors. Mr. Futterer had tried chloroform which had been recommended for this purpose, and thereby lost several valuable queens. Mr. Leschetitzky having tried it more than fifty times recommended putting the new queen in a cage on a brood comb as soon as the old one is caught, and then letting her loose the same evening, or if the operation be performed in the evening twenty-four hours later. The bees by this process do not miss the old queen, build no royal cells, and the laying of eggs is only interrupted for one day.

Mr. Kneipp found the following process successful in uniting stocks and a new queen at the same time:—Drive or sweep the bees without their queens into a large glazed pot, add the new queen, cover the whole with a cloth and shake them well two or three times, and then immediately put them into their hive. As Mr. Kneipp said, the bees are only too thankful to be allowed to live themselves, and are far too frightened to think of quarrelling.

Several other speakers related their experience, mostly of the usual method of uniting queens, and at last Mr. Von Klipstein said, that he considered the best plan to be to remove the old queen in the morning, and in the evening to put the new one smeared with a little honey from the same hive on a brood comb. This plan had long been successfully tried with queens of all ages, and even with virgin queens. At this stage of the proceedings there was a pause, after which the address to the King of Bavaria in favour of Mr. Schmid was agreed to. When the ordinary business recommenced—

Mr. Lambrecht attempted to read a number of his communications to the German "Bee Journal," on the subject of foul brood, but the apianians present having read them themselves refused to listen, unless Mr. Lambrecht would make known his professional cure for foul brood, which, however, he declined to do.

Mr. Steinbach then commenced an address on the question.

WHICH PORTION OF A FOUL-BROODY STOCK IS THE PRIMARY VEHICLE OF THE TRANSMISSION OF THE DISEASE?—To answer this question the speaker first recapitulated various theories upon the subject of foul brood:—

I. The theory of Dr. Preuss, that foul brood is owing to a fungus (*Micrococci*).

2. That of Dr. Assmann, who attributes foul brood to a parasitical insect (*Phora incrassata*).

3. That of Mr. Lambrecht, who maintains that the cause is to be found in sour or fermenting honey and pollen.

4. The hypothesis of Dr. Leuckart, that the eggs are already affected in the body of the queen.

He then proceeded to state as results of his own observation:—

I. That the bees of a foul-broody stock when moved without either honey or wax, into another hive always remain healthy.

II. The same result follows if two foul-broody stocks are united under the same conditions as to absence of comb, &c.

III. Sound colonies transferred into boxes which had contained foul brood, but were subsequently washed over with spirits of wine which was set fire to, remain as healthy as in a new hive. The same process also purifies comb frames.

IV. In a compound hive in which a foul-broody colony was suffered to remain for two years, the remaining colonies were unaffected.

V. Colonies in boxes above foul-broody stocks also remained healthy.

VI. Colonies on either side of a foul-broody stock remained unhurt, while others at a distance became diseased.

VII. In an apiary where there was one foul-broody stock, the others were healthy all the first season, and only showed signs of foul brood the next year.

VIII. Stocks which had been natchel for years, and whose honey was sour, so that on opening the hive a smell like beer could be perceived, were perfectly healthy, though also containing pollen several years old.

IX. Guide combs cut from foul-broody stocks have been used by

swarms without any evil result. But they had lain by half a year before being so used.

From these data Mr. Steinbach concluded:—

I. That foul brood is not transmitted by miasma, otherwise adjoining stocks must be affected.

II. Nor is it contagious, otherwise the bees moved from a foul-broody to a clean box would take the disease with them.

III. Nor does it arise from any internal affection of individual bees, or of the queen and her eggs, or else it would also be transmitted.

IV. Nor from the box, for the bees placed in it after burning out remain healthy.

V. Nor from the comb, which has been given as guide comb with no ill result.

VI. Nor from sour or fermenting honey or pollen, for colonies have been produced becoming foul-broody. The Lambrecht process has not yet been tried on naturally foul-broody stocks, and so nothing is proved by it as yet.

VII. Nor is it caused by fungi, for their millions of spores could never fail to affect neighboring hives. One peculiarity was that Mr. Steinbach had never had a case of foul brood except in boxes with moveable combs, yet the spores, if fungi were the cause, could enter straw hives as well as wooden boxes.

The speaker then argued that cholera, which Dr. Preuss had compared with foul brood, spreads against the wind, and that therefore its producing cause must be forwarded by means of the earth and not of the air, and the spores of fungi can hardly in either case be supposed to move against the wind; he would therefore consider the fungi discovered by Dr. Preuss rather a result than the cause of the disease. The speaker concluded by appealing to men of science still to persevere in their researches, and amongst other experiments to endeavor to ascertain whether foul brood could be propagated by inoculation.

After the conclusion of these remarks Mr. Steinbach produced two phials of honey, one from a healthy, the other from a foul-broody hive, which were both carefully investigated under the microscope by Professor Rosenhauer of Erlangen, and also at his request by Professor Kraus of the same University. Neither of these gentlemen, however, could detect the smallest difference between the two specimens, or any signs of fungi or spores in either.

In the course of the discussion which followed upon the speech of Mr. Steinbach, Mr. Dzierzon called attention to the important distinction between the two kinds of foul brood—the one which is easily cured, the other where it would be dangerous to use the hive again under two years. Where this kind of foul brood exists, the only thing to do is to destroy the stock, though the queen may be made use of for an artificial swarm or otherwise. Nor did he think that Mr. Lambrecht had produced virulent foul brood, or deem his experiments and reasoning conclusive. Another speaker, Mr. Wiegand, had been advised by Mr. Steinbach last year at Darmstadt not to waste boxes in which foul brood had existed, and the consequence of following this advice was, that he lost a swarm which he lived in such a box after it had been thoroughly "disinfected" and for two years exposed unused to the air. The two kinds of foul brood should be distinguished in name—the "plague" cannot be cured, nor its infection removed with certainty.

Mr. Heber had tried all the methods recommended for erasing foul brood—changing hives, making the bees fast, &c., but found his only safety lay in brimstone for the bees, and chloride of lime for the hives. He believed that straw and wood made but little difference. When he had sixty straw hives and a few boxes his straw hives were decimated; now he has 140 boxes, and no symptoms of foul brood.

As some persons had supposed that the Italian bee had something to do with foul brood, Major Von Hruschka remarked, that living in their country he had never seen or heard of it, whereas in Germany and France it was a matter of common complaint. He would suggest the consideration of one fact, that it appeared that where hives were not constantly disturbed at all seasons there was no foul brood.

## THE OPENING BEE SEASON IN SCOTLAND.

The past winter has been one of a most prejudicial character for bees. Protracted, severe, and with few intervals of sunshine and mildness, our apiaries in Scotland, so far as I can gather, have suffered considerably. The mortality is great in many, the thinly populated hives especially, even such as had ample stores having mostly succumbed. I believe were our hives, during such severe winters, better protected from cold and from the vicissitudes of the weather, fewer fatalities would occur. The spring, too, has been far from favourable. Cold, dry, and ungenial, vegetation is far back, and our little favourites hitherto have laboured under great disadvantages. Within these few days of balmy mildness, however, renewed vigour and activity are observable, and the air is again resonant with the merry hum of gladness, as on unwearied wing the bees hurry to and fro courting each opening flower, revelling in its proffered sweets, and homewards hastening laden either with pellets

\* Professor Mona has, however, spread this disease more than once.—TRANSLATOR.

of pollen varied as the rainbow's hues, or filled with nectar distilled from hidden cells. Who can stand by the side of an industrious colony of bees, and see its busy inhabitants prosecute their delightful and daily task with such industry, zeal, and good will, without being moved with feelings of admiration, wonder, and love? Let us hope that the summer, so auspiciously commenced, will turn out a favourable one for our little favourites, and more than make up for the backwardness of the spring.—J. Lowe, *Edinburgh*.

### OUR LETTER BOX.

**WHARFEDALE POULTRY SHOW.**—We are obliged to some correspondent for sending us a prize list; it is now too late. If the Secretary, as requested, had forwarded one of the time, we should have inserted it.

**EGGS SMALL J. TYRRELL.**—Having only one cock to so many hens, has no influence over either the size of the eggs or their contents. Those circumstances depend upon the kind of fowl. If they are Cochins-Chinas, the eggs and their yolks are always small. Spanish fowls lay larger eggs; but as your hens lay well, we advise you to be content. Instead of all hard corn we would give the hens once daily a mash of barley meal and boiled potatoes, otherwise they will become too fat, and then the plague of soft eggs and inflamed ovaries will occur.

**BRABHMA POOTRAS (C. R.).**—No true Brabha has five toes. If you have such, discard them at once.

**CHICKEN MAXIMUS (Cochin-Chin).**—The weather is so unusually severe, that we do not advise you to put out chickens only a few days old. We advise you to keep them in till there are no more frosts. In warm weather and where they are sheltered, we would put them out. You may give bread and milk, chopped egg, chopped cooked meat, bread and beer. But do not mix milk, and bread and beer. Feed early, late, and often.

**BREEDING BLACK COCHIN-CHINAS (Black Cochin).**—We only said we were told that was the way in which they were made. It is just possible the eggs laid by the hen were rendered fertile before you had her.

**PRESERVING EGGS (E. C. K.).**—You have been misinformed. We save eggs all the year round in this climate. The chief point is to put them in when fresh, because they come out as they are put in.

**PINIONING SILVER PHEASANTS (A. B. C.).**—You may pinion your Silver Pheasants at from twelve to sixteen weeks old. You will find the wing has first the flight joint that holds five feathers, then another joint at the end of six more feathers, and then a third joint at the spur of the wing. A sharp knife should be taken, put under the spur, and then raised with the edge resting on the wing. It requires two persons to perform the operation cleverly. While one with one hand holds the wing of the bird motionless, and the other with the other hand holds the spur, the second strikes the back of the knife sharply with a thick stick or piece of wood, and the operation is done. The bird feels but little, and although there is often a great show of blood, it is by no means a serious operation. Care should always be taken to stop the spur of the wing, so that it is unpierced and unweakened, then a cock and six or eight hens of Brabmas, Pootras, Cochins, Houdans, or Orve-Cours for your yard, 33 feet by 20 feet, can be kept healthily on condition of your following the instructions and warnings we give week after week.

**NUMBER OF FOWLS FOR A SMALL YARD (O. E. S.).**—Yards differ. The townsmen's experience and idea of a yard is a small space covered with flagstones, and surrounded by high walls that exclude all sun. No fowls will do there. If it be light, sometimes visited by the sun, and if it be unpaved and uncovered, then a cock and six or eight hens of Brabmas, Pootras, Cochins, Houdans, or Orve-Cours for your yard, 33 feet by 20 feet, can be kept healthily on condition of your following the instructions and warnings we give week after week.

**HARDINESS OF BRABHMA AND HOUDANS (K. Y. Z.).**—We consider Brabmas hardier than Houdans, and their chickens easier to rear. Houdans, in common with all the French breeds, are late layers. Such as you describe will not lay before December. We can answer your question about the white feathers more easily if we know on what part of the body they come.

**FOOD FOR CHICKENS (Delish).**—We cannot answer your questions as readily as we could if we knew the breed of the fowls. The best food is that which keeps the fowls in the highest condition. They will then grow well, but you ask for an impossibility when you want to secure the greatest growth and early maturity. The first stage is night, and the second stage is day. We consider ground oats the best food for fowls for poultry. Autumn-hatched chickens never attain any size. The weather is against them, and the nights are too long. Houdans are easier to rear than Spanish.

**MICE IN PIGEON-COTE (W. A.).**—We can add nothing to what we published on this subject in our last number.

**PIGEONS TOO OLD TO BREED (Inquirer).**—You bought a pair of birds too old to breed. All fanciers have at some time or other done the same. Frequently excellent birds are offered cheap, but then they are parted with because barren. One of the old treatises on Pigeons says, "The life of this bird is said to extend to about eight years, but it is useless for the purpose of breeding after it has attained half that age." This we do not believe to be entirely correct, but never buy when a bird is seven years old. Old age shows itself in the wrinkling of the nostril covers, the sunken eye, and thickened appearance of the eyelids, and the rough feet.

**ANTWERPS (Chester).**—These birds were unknown or little known until recent years, so that the best accounts are found in the most modern books. Eaton, whose work bears the date of 1858, confesses he knows little or nothing of them. We wrote a little on the subject in our last issue. In "Pigeons" there is a long chapter on Antwerps and other homing birds, but the best account of the show Antwerps of the present day was in the number of this Journal for February 17th of this year. Colour of eye waste immaterial.

**BREEDING COLOMBUS-MATRIAL. MILES (W. Hay).**—Your query involves two questions—1st, Whether it is safe to take away the male bird as soon as the Canary hen has laid her first egg; and 2nd, Whether it is better to take away the eggs daily till she has laid her complement, or to

allow them to remain. To the first question, whether applied to the Goldfinch or not, but considered in the abstract as a physiological matter, I should say, Yes. When running one cock to two or three hens, I always make it a practice to remove him from any one of them as soon as she has laid her first egg. I will not go so far as to warrant that all of them will be fertilised, for it seldom happens that every egg in a nest, of say five, is impregnated even under the most favourable circumstances. When I say seldom, I mean that it is more frequently the other way, as the basins of food eaten by many a bird's room at the end of the nest can testify. But to the question applied to the Goldfinch, especially as a well-known mischievous character, who pees about like an excise-man tapping and gauging every egg with that long sharp beak of his, I should advise you to remove either him or the eggs, or do as I can assure you I have known done—put up about three or four in the morning and sit in your night-shirt till the hen lays her egg. Keep your eye on the Goldfinch, for he will keep his on you; one of them at any rate. With the other he will wink at the hen, as much as to say, "Look sharp with that egg!" Then she will sit on it, and you will be safe to remove her from the cage, and it is almost any odds that you will run a bad second in the race. The gauger will have sampled the egg, and may politely present you with it on the end of his beak. You retire disgusted and with very cold feet, while the gauger chants his morning chant—*"Sipit, widdle, widdle, clam, clam, widdle, chay,"* which means, "This might all have been avoided if you had removed me the night before you expected the hen to lay," which ought always to be done till you know from experience that the bird is a good worker. It is a good plan to keep a few records taking away the eggs till the hen has laid her complement, I always do, and return them on the morning when she lays her fourth egg. They will then chip simultaneously on the morning of the thirteenth day, and begin life as equal terms. As you will see, many breeders do not follow this plan, but I have you to learn if a hen lay four, or five, or six eggs, and sit from the first, that it is possible for them to chip together. If she should not show any inclination to sit well, the eggs are as safe in my keeping as in hers, and are as safe as with any temptation. But last, and from long-continued domestication and the force of surrounding circumstances, the argument of the habits of wild birds will not apply.—W. A. ELAISTON.

**FOOD FOR BLACKCAPS (Randolph).**—The best food for Blackcaps is raw beef and hard-boiled egg; scrape the beef off with the edge of a knife, and mix yolk of egg and a little water. It ought to be fresh every morning. The objection to it is that it makes a nasty smell in the cage. I find the following receipt of Capt. Hanley, First Life Guards, newer well. "German paste"—2 lbs. pea meal, 2 lbs. Scotch oatmeal, 1 lb. molasses, 1 lb. beef dripping, 1 lb. honey, 2 quarts hemp seed, 1 pint new sugar. Melt the dripping and honey in a saucepan and pour it over the meal and sugar, rubbing it well between the hands so that there may be no lumps. When mixed, place in a fat tin dish in a stove oven. If the oven is too hot all will be spoiled. When done, spread it on a board, and mix the hemp seed (already well crushed and cleaned from husk as far as possible), and the meal seed with the paste. When cool place in a jar, and it will keep good for months. In feeding, one egg, white and yolk, will do for a teaspoonful of paste. The above paste, with the addition of a few drops of water, makes a good food for the birds. It is a good plan to dry older berries, and in the winter soak in warm water and give the bird a few daily.—HOWARTH ASTON.

**LINNETS AND OTHER FINCHES (S. S. P.).**—To answer your query would fill all columns. If you enclose twenty postage stamps with your address, and order Brent's "British Finch," we will send you one of our old price free. It contains the information you need.

### COVENT GARDEN MARKET.—MAY 11.

The markets remain very inactive, and no advance can be obtained on last quotations. Fine Apples, Grapes, and Strawberries are more than sufficient for present consumption; the last-named have been more abundantly supplied than for several previous years. Old Potatoes of good quality are in fair request, and new ones, both round and kidney, can be had at prices ranging from 25s. to 30s. per cwt.

#### FRUIT.

	s.	d.		s.	d.
Apples.....	1	6	0	0	0
Apricots.....	1	6	0	0	0
Cherries.....	1	6	0	0	0
Chestnuts.....	1	6	0	0	0
Currants.....	1	6	0	0	0
Figs.....	1	6	0	0	0
Grapes.....	1	6	0	0	0
Guavas.....	1	6	0	0	0
Oranges.....	1	6	0	0	0
Pears.....	1	6	0	0	0
Peaches.....	1	6	0	0	0
Raspberries.....	1	6	0	0	0
Strawberries.....	1	6	0	0	0
Walnuts.....	1	6	0	0	0

#### VEGETABLES.

	s.	d.		s.	d.
Asparagus.....	1	6	0	0	0
Artichokes.....	1	6	0	0	0
Beans.....	1	6	0	0	0
Beet, Red.....	1	6	0	0	0
Broccoli.....	1	6	0	0	0
Cabbages.....	1	6	0	0	0
Carrots.....	1	6	0	0	0
Cauliflower.....	1	6	0	0	0
Celery.....	1	6	0	0	0
Cucumbers.....	1	6	0	0	0
Endive.....	1	6	0	0	0
Fennel.....	1	6	0	0	0
Garlic.....	1	6	0	0	0
Herbs.....	1	6	0	0	0
Horseradish.....	1	6	0	0	0
Leeks.....	1	6	0	0	0
Lettuce.....	1	6	0	0	0
Mustard & Cress.....	1	6	0	0	0
Onions.....	1	6	0	0	0
Peas.....	1	6	0	0	0
Parsnips.....	1	6	0	0	0
Radishes.....	1	6	0	0	0
Rhubarb.....	1	6	0	0	0
Savoy.....	1	6	0	0	0
Spinach.....	1	6	0	0	0
Turnips.....	1	6	0	0	0
Vegetable Marrows.....	1	6	0	0	0

## WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 19—25, 1870.	Average Temperature near London.			Rain in last 13 years.	Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	s.
19	Th	Meeting of Royal Society, 8.30 p.m.	67.0	42.7	54.3	14	5	44	48	17	20	47	50	47	19	3	48
20	F		65.9	43.4	55.2	20	4	49	7	26	0	57	8	20	3	45	
21	S	Crystal Palace Show.	66.3	44.7	55.5	19	3	4	50	7	3	1	5	10	21	3	41
22	Sun	5 SUNDAY AFTER EASTER. [Society, 8.30 p.m.]	65.4	42.4	53.9	19	2	4	52	7	31	1	14	11	21	3	38
23	M	Anniversary Meeting of Royal Geographical Society, 8.30 p.m.	67.2	42.6	55.5	15	0	4	53	7	54	1	1	after.	23	3	38
24	Tu	Anniversary Meeting of Linnean Soc., 3 p.m.	67.4	43.0	55.2	12	59	3	55	7	13	2	29	1	24	3	38
25	W	Royal Botanic Society's Show opens.	65.4	42.9	54.2	16	58	3	56	7	33	2	36	2	25	3	32

From observations taken near London during the last forty-three years, the average day temperature of the week is 66.5°; and its night temperature 43.2°. The greatest heat was 83°, on the 22nd, 1847; and the lowest cold 23°, on the 23rd and 25th, 1847. The greatest fall of rain was 0.76 inch.

## TREES AND SHRUBS VERSUS HARES AND RABBITS.—No. 2.

TREES AND SHRUBS MOST SUBJECT TO THE ATTACKS OF HARES AND RABBITS.



MUST in the first place state my firm conviction that the prevailing opinion that there are no trees or shrubs which hares and rabbits will not eat or bark, is only a popular error. The Lime is the first that I shall name as being a great favourite of hares and rabbits; but of all trees there is none they bark so effectually and destructively as the Laburnum. To Apple, Crab, and Pear trees they are partial, and they not only bark the Oak but nibble off all the tops of it they can reach. Larches have their leaders cut off, if not too tall, and the stems come in for a terrible gnawing unless they are protected by long grass. Silver Fir they eat down to the ground, the stump only being left in the earth. Norway Spruce is a favourite, and the young leaders suffer much. Scotch Firs, if so small as to be within reach, lose their leaders for ever. Balm of Gilead Fir does not escape, and White-thorns are ringed. Holly is taken freely, and Laurustinus has all its tender shoots cut off, along with the leaves. Aucubas are the first to fall, nothing being left of them above ground. Austrian Pine leaves are eaten, but the growing points mostly escape. The tops of Privet are taken; Poplar and Horse Chestnut are barked; English Elm, so tough, is torn; and the Plum and Almond are not permitted to flourish.

### TREES AND SHRUBS INTERFERED WITH ONLY IN VERY SEVERE WINTERS.

Sycamore very seldom. Black and White American Spruce, the Weymouth Pine, and the Corsican Pine are not often eaten or barked; Ash sometimes, likewise Mountain Ash; Beech and Spanish Chestnut generally pass without great harm. Common Laurel is not much cared for, and Thorn Acaia rears its head without much interference from the hares. Roses and Briars must be placed in this list, and Berberis Aquifolium, Box, Yew, and Broom.

### TREES AND SHRUBS NOT INTERFERED WITH.

Alder and Birch which on swampy ground it may not have been possible to approach. Hornbeam, and Wych Elm, English and Norway Maple, Turkey Oak, Willow, Wellingtonia gigantea, Cedrus Deodara, C. Libani, and C. atlantica, Cupressus Lawsoniana, Thuja Lobbi, American Arbor Vite, Thujaopsis borealis, Portugal Laurel, Juniperus communis, Pinus Cembra, Pinus excelsa, Lilacs, Gorse single and double; Ribes, none doing better than the Black Currant in strong soil or damp ground; Rhododendron, Azalea, common Berberry, Guelder Rose, Dogwood, Snowberry, Hazel, Sweet Briar, Blackthorn, Cotoneaster microphylla, Weigela, Spiraea, Ribes Cofinus, Ribes typhina, Canadian Gooseberry, Ribes album, Bird Cherry, Butcher's Broom, Spurge Laurel, Euonymus, Dentzia scabra, St. John's Wort, and Elder.

I do not affirm that hares and rabbits will not eat nor

bark any of the last-named trees and shrubs, but that I have not seen them interfered with. The observations have been made where game abounds, and in what may be called ornamental game coverts, or belts and groups in the park and adjoining the garden. Of the garden part it would be needless to write, as the game have not free access to it, and from its proximity to the mansion they do not make prolonged visits.

A few hints may not prove unacceptable to some who have to form and get up as quickly as possible groups, belts, or screens in parks and parts that are adjuncts to the garden. In the first place, it is desirable to plant only those kinds of trees and shrubs which hares and rabbits are least disposed to attack, and yet they may be unsuitable to the soil, or some of them, and others which are most liable to injury may be indispensable for affording the desired effect: hence the necessity of employing them, though at the risk of losing many. I think it is useless to plant any of the trees in the first list, and not many of those in the second list, without taking means to keep off the destroyers, either by planting larger trees, or placing round them fencing which will effectually prevent an entry being made.

Planting trees and shrubs of larger size than usual may seem a very objectionable mode of attaining the object in view, for there is the greater cost of large trees as compared to small ones; besides, all experience proves the smaller the trees and shrubs are the better they grow. I may say that planting Scotch Fir, Austrian Pine, and similar nursing trees 12 to 18 inches high has often to be repeated half a dozen times; or if they escape, as they may do when planted in spring, and the growth of the grass is so rank as to cover them, the progress they make the first half dozen years is very insignificant, in many cases not rendering them equal in size to those I would in the first instance plant. Planting mere switches of "hard woods," though they may be 3 or 4 feet high, is little better than planting the Scotch Fir and Larch a foot and 18 inches high respectively. They are either cut down by the game, or the growth of the grass keeps them small. The planting of small trees is simply planting with a prospect of a great deal of filling up, and waiting half a dozen years for them to show above the grass, and then the plantation can hardly be said to be safe.

As regards the objections to planting larger-sized trees than usual, I think the expense is not greater than planting those of small size; for if the work be done at a proper time with proper plants the failures will be few. The great impediment to planting larger trees than are usually employed, is the difficulty of procuring properly-transplanted plants. By planting trees of a good size at the commencement, we have at the end of twelve months compassed seven years' growth of small trees, and as for their not doing so well afterwards as young trees it is simply an unproved notion.

I advise, therefore (and I practise what I advise), instead of employing Oak, Lime, Beech, Elm, Horse Chestnut, and all kinds of "hard woods" 3 to 4 feet high at the time of planting, to have them from 6 to 8 feet in height,

taking care that they have been transplanted within the last three years, and not one in a hundred will fail. But if trees are planted that have stood half a dozen years without removal, which have been struggling all the time for space to unfold the leaves on the leader, which have no side shoots, the roots going as straight down as the leader goes upwards, it would be better to burn than to plant them, for younger trees will be far superior. Oaks which at 4 feet high are difficult to remove, are so only because they have thick strong roots, but get rid of these by transplanting two or three times, causing the production of fibres, and they lift with fibrous roots, with a ball if wanted, and as safely at 12 feet as at 4 feet high; indeed, some hardwooded trees at 3 or 4 feet high are nothing better than flower sticks.

Strong large "hard woods," then, are what I would plant, and immediately after planting stake and securely tie. The staking and tying with many would not be necessary, and a lad with a paint pot, or can, and brush could brush the stems from the ground upwards to the height of 2 or 3 feet with paraffin oil, and neither hares nor rabbits would touch them for a season. The like result would attend placing a hayband round each stem, so as to cover it for about 3 feet high, also painting the stem with a composition of one-fourth lime, one-half soot, and one-fourth cow dung, with sufficient gas liquor to bring the whole to the consistency of paint. Lime and soot in equal proportions will answer just as well, gas liquor being used for mixing, and so will lime alone, only it is apt to get washed off. The work of staking and tying is often neglected until the trees are blown to one side, twisted about—very often in frosty weather—and injured to a serious extent; and frequently the precautionary measures to keep off hares, &c., are not thought of until the trees are barked.

As to the Larch, Spruce, and Scotch Fir, with its allies the Pines, I would have the first two, and the Austrian Pine in particular, not under 2½ or 3 feet high, the Larch being no worse if nearer 1 foot than 2 feet. These ought to be transplanted within two years of the time of planting, and then they will lift with good fibrous roots, and even balls if wanted. Scotch Fir I would have 2 to 2½ feet high, or even larger, but not at all unless it had been moved every alternate year, and all the better if only the year previously. Such trees, properly planted, would not be staking, or only a few stakes, and a lad would go over a great many in a day with a brush, snointing the stems of the Larch, and also the others, if bare, with paraffin oil.

The shrubs should also be of good size to correspond with the trees, and to hold their own against the grass, and a selection being made of those least likely to suffer from the game, put in stakes about 2 feet high, and run three pieces of tatted twine round at 6 inches apart, beginning at 6 inches from the ground. I think that in this way good plantations, belts, screens, clumps, or whatever they may be, will be obtained in a few years, fit for game and landscape purposes.

The precautionary measures will only serve for one year. It will be necessary to repeat them every season until the trees be safe—that is, when the "soft woods" and "hard woods" have begun to have scaly barks.

I may be asked, Could not small trees be treated in the same way as the larger trees? No doubt the hardwooded trees and Larch could, but not the Scotch Fir and Pines, but even if they could, and hares and rabbits were not to touch them, the grass so interferes with their growth, that they merely live for a few years, and grow about as much in three years as they would in trenched ground in one. Why not trench the ground, then, and plant young trees? Of course, if game is not the principal object, then trench by all means; but where game is wanted, the planting must be on grass, or if grass does not already grow on the spot, it must be furnished by sowing such kinds as are suitable for the herbage, and seeds which the game like.—G. ARBET.

#### A GAY GARDEN IN SPRING.

The appearance of desolation which so many gardens present at this period of the year in stark contrast to the daily increasing beauty of the surrounding country, where the river banks and hedgerows are in themselves gardens, has induced me to offer a few remarks on the subject of spring gardening.

There is no lack of flowers that bloom at this season, and no difficulty in having the garden bright and beautiful during the spring months if time be not taken by the forelock, and a defi-

nite arrangement arrived at a year in advance. Let it be understood that I am not writing on behalf of those persons who seek a gardener, but for that numerous class, the owners of small gardens, who do the greater part of the work themselves. Now is the time to decide how the beds shall be filled for next spring. The best system, in my opinion, is the employment, principally, of that class of plants which can be moved at the end of the present month, comprising Wallflowers, Pansies, Alyssum saxatile, red and white Daisies, Aubrietia, Early Tulips, Anemones, &c. The autumn-sown annuals, such as Silene, Limnanthes, &c., should be used in moderation, as they seldom make a show before the 20th of May, at least in the midland counties. They are principally valuable in affording a display during the interval between the removal of the early subjects and the summer bedders. Early Tulips may be planted in the beds with the annuals. The Tulips will push up through the plants, bloom in April, and be fading about the time the annuals are putting in an appearance. I have come to the conclusion that the German and other varieties of the Wallflower are inferior to the common sort in appearance and early and free-blooming. The blood-red and the yellow are the best for bedding or backing up a border. They should when small be transplanted 8 or 10 inches apart—not left to spindly in the seed bed as is so frequently done. The centres should be pinched out when the plants are a few inches high. A little trouble in their cultivation will be amply repaid by an early and vigorous bloom. Cuttings of Alyssum saxatile should be struck at once, and planted out in a good situation, not put away in any corner. If they can be afforded the protection of a cold frame or hand-glass for a little while, the plants will be much finer. Hyacinths are so liable to injury from the weather that I can hardly recommend them. Care should be taken that the Pansies for bedding are of free-blooming and vigorous habit. The Cliveden varieties are very good.—FAIR PLAY.

#### CASES FOR EXHIBITING FLOWERS.

Who that has ever exhibited a cut flower but has not anxiously awaited the opening of his box on the day of exhibition? How charming those Roses looked when you cut them in the glimmering twilight; how beautiful they were when you had placed them in their box; and as you surveyed them the thought would come across you, Can they be beaten? But then there was an ugly idea that came rushing across your mind, What will those porters do with them? You have marked them, "Flowers—this side up—great care!" but with a thrill of horror you see that the porters are charmingly indifferent to all your care, and you might as well have left that undone. Then, you have taken a "four-wheeler" at the station; and as you jolted over the rough pavement each jolt sent a pang through you as you thought of your pets and the sufferings they were enduring; and when you arrived and eagerly opened your box, alas! your fears were too prophetic, and if not the *defecta membra poetæ*, you could no more recognise your beauties of the night before in these jaded-looking flowers than you would see in the jaded and haggard young lady of the morning the brilliant beauty of the previous night. One cannot do as I have known some do (and as, we are told, some owners of horses sleep in their stables for nights before the Derby or Oaks), sit in the guard's van on one's boxes all the night; and therefore all exhibitors, I should think, would hail with thankfulness anything that would make them independent of such mischances. Now, I believe that is in their power. I have had lately brought under my notice a most ingenious contrivance invented by Mr. W. F. Chapman, of Llandudno—namely, his patent exhibition and cut-flower transmission case. I have had the opportunity of trying it, and I do not hesitate to say that it is an immense boon to the exhibitor. By the successful application of india-rubber it becomes impossible for the water to be spilled or the flowers to be injured, and the exhibitor may ease himself all the worry and anxiety he has heretofore experienced. My friend Mr. Perry has, I believe, ordered a set, and I feel sure that when known they will come into very general use amongst amateurs. I fully expect to see them in many an exhibition-room this season, and congratulate my floral brethren on an important invention to meet a want they must have felt.—D., Deal.

LITHOSPERMUM CERULEO-PURPUREUM.—I send you specimens of this to show what a most beautiful thing it is at this season.

There is a splendid, large, captivating bed of it in the flower garden here at present.—ROBERT MACKILLAR, *Colworth Gardens, Sharnbrook.*

### GRAFTED VINES—RESTRICTED AND NATURAL GROWING.

My removal from Mount Pisgah gave me the opportunity to make observations on the roots of a lot of healthy young Vines just coming to full vigour. It was astonishing to see the great number and length of the roots made by grafted plants only three years from the eye; several were traced 21 feet—all hard wiry roots; not one of a soft texture was to be found. I believe this state of things was induced by the soil being of a light porous description, quick perfect drainage, and the omission of such quantities of manure as it is usual to add to a Vine border, relying totally upon the manure being supplied with the water when the Vines were under a crop of Grapes. The border was inside, occupied the whole extent of the house, and was 2 feet deep. All the roots were contained in a depth of 15 inches. No doubt the regular top-feeding induced this, and most likely would have prevented the roots going down—a thing to be avoided. This teaches us not to plant Vines so closely as it is usual to do at present—that is, from 3½ to 4 feet apart, but to preserve a better balance between the roots and the top.

I do not think it useful to aim at having Vines of extraordinary size like the Hampton Court Vine, but would plant one Vine where now four or five are planted. This, possibly, would only give two sorts of Grapes in one vineyard if the Vines were of a fair size; but the number of sorts can be obtained by planting Vines, as I am doing, grafted with two, three, four, and six sorts of Grapes, half white and half black. The varieties should be suitable for growing together, and the stock agreeable to all the sorts worked thereon. This method will produce a fine strong Vine, and provide room for the roots and top, also for as many sorts of Grapes as may be desired, no matter if grown to poles, rafters, or to the back wall of a lean-to. I have pot Vines with black and white Grapes of two and three sorts on one plant, and they have when in fruit a very handsome effect. A Vine border, 100 feet long and 20 feet wide, is being wholly planted with grafted Vines, only a few bones being added to the soil. The use of hardy, strong-rooting stocks enables me to avoid the costly-made Vine border.

I send for the Editors' inspection a sample of the soil and subsoil, as notes of the grafted Vines with various sorts of Grapes worked on the same plant will be communicated from time to time.

Mr. Abbey's question (vol. xvii., page 389), I have not had the opportunity to answer till now. The canes were of the current year's wood, Chonch taking the lead, and Lady Downe's and Gros Guillaume being about equal second.—*L. M. W., Fir View, Sheffield.*

[The soil would be benefited by the addition of crushed bones and lime rubbish, the subsoil to be well drained.—*Eds.*]

### AN AMATEUR'S METHOD OF WINTERING BEDDING PLANTS.

THERE are many amateur horticulturists who annually preserve most of the bedding plants required for the summer decoration of their little gardens. To see the choice and varied assortment, and the large quantities of such plants which some amateurs led out, the wonder is where and how, with their limited means, they manage to preserve them so successfully throughout the winter; however, in the following remarks I hope I shall to some extent unfold the mystery.

Several times I have had the opportunity of witnessing the doings of an amateur who has very successfully preserved a large stock of plants throughout the past long and dreary winter, without any artificial heat, or any better accommodation than cold frames and earth pits. His residence is a few miles from here; the gardens are not more than an acre in extent, and the kitchen garden is an oblong, slopes slightly towards the south, and is bounded on the north by a thick well-trained common Laurel hedge about 7 feet high, and on all other sides by a quickset hedge high enough to afford considerable shelter, but not too high to prevent a proper circulation of air all over the garden. The south side of the Laurel hedge is the spot chosen for wintering the plants, and for this purpose a border 10 feet wide has been well drained with 2-inch common drain pipes,

all leading to a main drain of 4-inch pipes. Over these pipes are placed such rough materials as slinkers, stones, and broken bricks, gradually broken finer towards the top, after which a coating of sifted coal ashes is put on and beaten firm enough to bear tramping upon without showing it. The thickness of the rubbish over the pipes is not more than 9 inches, and the materials are so arranged that when the border is finished off it shall be about 3 inches higher than the path, which runs along in front or parallel with it. Along this border are ranged one double-light and three single-light frames of the usual size and depth back and front, besides two turf pits of the same size which have glazed lights over them. The frames are far enough apart to admit of a path to each frame, and room for the protecting materials also.

The number of plants wintered in these places is from 600 to 800, consisting of the following sorts—viz., *Verbenas* Purple King, Robinson's Defence, and *Falchella*; *Pelargoniums* Tom Thumb, Little David, Cybister, Indian Yellow, Bijon, Golden Chain, and Mrs. Pollock; *Salvia patens* and splendens; *Dahlia*s of sorts; and several choice *Pansies*, besides *Lobelia speciosa*, *Koniga maritima*, and several sorts of *Fuchsias*. The little propagating that is required is done in August and the following spring, but among *Pelargoniums* only sufficient stock is raised to supply the place of old plants to be thrown away.

Before taking up time comes on, a mixture of common garden soil and sand is prepared, and it is kept dry; this is the soil used for both potting and storing. The *Dahlia*s, *Salvia*s, and some *Pelargoniums*, such as Tom Thumb, are laid in the soil in the turf pits, while all other plants are stored away in either small pots or boxes. The latter are of various sizes, none of them more than 18 inches long by 6 wide and very many are no more than 6 inches by 4. They are made of rough but straight pieces of board, and the bottom part of the end boards is fully an inch below the bottom of each box, which elevates the body of the box so much above the soil that water can readily escape, and air can circulate freely among the boxes. This plan, I should think, is worthy of more general adoption, as it must to a great extent prevent mildew and damping-off in cold frames. The pots are only large enough to hold one plant each, and before storing one or two gross or straggling shoots are cut off each plant, and sufficient water is given to settle the soil about the roots.

The double-light frame above spoken of is fitted up with a sort of stage—merely a few boards supported on bricks—coming up very near to the glass. This frame is partly filled with such difficult kinds to keep as Mrs. Pollock, while sufficient room is left for the better treatment of any plant that may require it during the winter.

Having now given a general description of the preparation for and the storing of the plants, I will endeavour to describe their after-treatment. For some days after the plants are put in the frames they are kept a little close, just to encourage root action, but not so closely as to cause the plants to grow afterwards; and throughout the winter every opportunity is taken advantage of to give them both light and air. Very little if any water is given them, and it is surprising how long some of the *Pelargoniums* will live without it, but cleanliness is most important to ensure success in this mode of wintering bedding plants. Every dead leaf or rotten stem brings mildew or some other enemy; therefore these, weeds, and any other accumulation should be properly cleared away when the weather will allow. The object in having such small boxes was for the better prevention of mildew and other diseases, for if a plant or two in a box become affected they can be taken to better quarters, and the disease confined to the few plants contained in the box. For protection against frost, the sides of the frames are banked up with rough stable litter, which is renewed two or three times during the winter. Decayed manure, which some people use, was found to cause dampness in the frames. The tops are protected by mats, hop-pockets, sackings, &c., and if the weather is severe a covering of dried grass is put on the top.—*Thomas Record, Lillesden.*

### COCCUS FLOCCIFERUS.

I HAVE just seen the engraving in the "Florist and Pomologist" of a supposed new insect which attacks the Camellia, and which is described by Professor Westwood as *Coccus flocciferus*. The same insect I saw two or three years ago; then I was gardener to J. Elliott, Esq., The Cadars, Ashford, Kent.

It was upon the Camellias there, and as the plants had the common brown scale upon them, I thought it was in some way connected with the scale. I used to take off the insects whenever I saw them, and when I had cleared the plants of them the scale disappeared also, and I therefore came to the conclusion they were either the male or female of the common brown scale. If this should meet the eye of the present gardener at The Cedars, perhaps he would see if there are any of them there now, and send one to you for inspection.—J. F. DAWSON, Gardener to W. H. Smithard, Esq., Sommersville, Guernsey.

## ROYAL HORTICULTURAL SOCIETY.

MAY 18TH.

THE Show held this day in the Conservatory and the adjoining corridor was as good as its predecessors, and if we missed the lovely Roses which gave such a charm to the exhibition of a fortnight ago, there were fresh gems of the floral world to take their place, in the Pelargoniums and Heaths, which constituted the principal subjects for the day, supplemented as usual by a large display of other plants. The weather was extremely favourable—very warm with bright sunshine—and there was nothing to mar the enjoyment of the Show by the numerous company.

Class 1 was for nine Show Pelargoniums. In this Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, was first with a magnificent plant of *Mdlle. Patti* 4 feet in diameter, Lilacium, Fairest of the Fair, Patroness, Conqueror, Empress Eugénie, Ariel, Exhibitor, and Regina formosa, the whole of them beautifully bloomed specimens. Messrs. Dobson & Son, of Isleworth, were second with, among others, very fine specimens of *Rose Celestial* and *Lilacium*; the rest, also in excellent bloom, being *Desdemona*, *Constance*, *Leotard*, *Belle of the Ball*, very showy; *Patroness*, *Favourite*, and *Pericles*.

Class 2 was for six plants, and for amateurs only. Mr. Ward was again first with large specimens and very full of bloom. The kinds were *Empress Eugénie*, *Pericles*, *Fair Rosamond*, *Mdlle. Patti*, extremely beautiful; *Desdemona*, and *Maid of Honour*. The second prize went to Mr. Windsor, gardener to J. R. Ravenhill, Esq., Leytonstone, who had rather smaller specimens, but likewise in fine bloom, of *Beacon*, *Desdemona*, *Caractacus*, *Patroness*, *Sir Colin Campbell*, and *Rose Celestial*. The third prize was awarded to Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead.

Classes 3 and 4 were for the Fancy varieties. Those shown in the latter class by Mr. Windsor, gardener to J. R. Ravenhill, Esq., were literally masses of bloom, though measuring each about 4 feet in diameter, and all were equally good. The varieties were *Mrs. Ford*, *Lady Craven*, *Madame Sainton Dolby*, *Godfrey Turner*, *Roi des Fantaisies*, and *Ellen Beck*. To these the first prize was awarded, the second going to much smaller plants from Mr. Weir, and the third to Mr. James, gardener to W. F. Watson, Esq., Isleworth. In Class 3 there was one collection; it came from Messrs. Dobson & Son, and received a second prize.

Classes 5 and 6 were for six Zonal Pelargoniums from nurseriesmen and amateurs respectively. Among nurserymen Messrs. Downie, Laird, & Laing, Stanstead Park Nursery, were first with well-bloomed plants 3 feet in diameter of *Sultan*, *Comet*, and *Countess of Strathmore*, scarlet; *Ladies' Pet* and *Rose Stella*, shades of rose colour; and *Duchess of Sutherland*, magenta crimson. Messrs. Bell & Thorpe, Stratford-on-Avon, were second. Among the varieties in this collection *Sparkler* was a very bright scarlet Nosegay. In the amateurs' class the best six came from Mr. Cathin, gardener to Mrs. Lermite, East End, Finchley. These were trained on flat wire trellises, and measured 4½ feet across. The varieties were *Commander*, *Clipper*, very brilliant; *Tintoret*, *Leader*, *Oliver*, and *M. Rendatler*. Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, was second; Mr. Townsend, gardener to J. C. Mappin, Esq., Clapham Park, was third. These and all the other plants shown in this class were flat-trained on wire trellises.

Double-flowered Pelargoniums were shown in Class 7. The best three specimens came from Messrs. Bell & Thorpe, and consisted of *Gloire de Nancy*, fine; *Hector*, poor; and *Madame Lemoine*, very fine rose. Messrs. Standish & Co. came second with *Marie Lemoine*, very fine, rose; *Wilhelm Pfitzer*, fine scarlet; and *Merveille de Lorraine*. The third prize went to Messrs. Downie, Laird, & Laing.

Class 8 was for Cape Pelargoniums, but there were none shown. Heaths were shown in Classes 9, 10, and 11, and shown, too, in excellent bloom. The first prize in the amateurs' class for six went to Mr. Carr, gardener to P. L. Hinds, Esq., Byfleet Lodge. His specimens, though in large pots for their size, were in most beautiful bloom, especially *ventricosa coccinea minor*, which was, in fact, all flower; *mutabilis*, and *ventricosa grandiflora*; *Victoria*, *elegans*, and *Cavendishii* were also good. Mr. Ward, gardener to F. G. Wilkins, Esq., was second with fine specimens of *Lindleyana*, *elegans*, and *eximia superba*. Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., M.P., who was third, had *Spenceri* in fine bloom; and Mr. A. Wright had a beautiful plant of *ventricosa coccinea minor*, and *tricolor Wilsoni*, not yet at its best. The best eight came from Mr. J. Ward, and included a large and fine plant of *Cavendishii*, *Candolleana*, *candidissima*, *ventricosa magnifica*, *tricolor Wilsoni*, *florida*, and *l'airriana*, all of which were large and in charming condition. Mr. Wheeler,

gardener to J. Phillpotts, Esq., Stamford Hill, was second with beautiful plants of *Spenceri*, *Victoria*, and *coccinea minor*, together with other good specimens. Mr. Morse, Epsom, was third. Mr. Ward likewise carried off the first honours for twelve, the brilliant *westphalia*, *profusa*, *tricolor impressa*, *tricolor exquisita*, and *tricolor Wilsoni* being conspicuous in an exceedingly well-bloomed collection. Mr. Wheeler, Stamford Hill, was second.

Stove Ferns were shown in Classes 12 and 13, the first named class being for nurserymen, the second for amateurs. Among nurserymen Messrs. Bell & Thorpe were the only exhibitors, and took a first prize for a collection in which there were a fine *Bird's-nest Fern* and *Davallia pyxidata*. In the amateurs' class, Mr. Wright, gardener to H. C. Roberts, Esq., Regent's Park, was first, Mr. Carr second, and Mr. Wheeler, Regent's Park, third. Among these collections were very excellent specimens of the *Adiantum farleyense*, *Cibotiums*, *Gleichenias*, *Lomaria gibba*, and *Platyceerium alcorni*.

Numerous miscellaneous subjects were exhibited, and added much to the charm of the show. Messrs. Lee, of Hammersmith, had a group for which an extra prize was awarded, and which included a splendid plant of *Medinilla magnifica*, *Aphelaxis*, *Cypripediums*, *Gleichenia semivestita*, very fine; *Cattleya citrina*, *Vanda tricolor*, and numerous other plants. An extra prize was also awarded to Mr. Denning, gardener to Lord Londeshborough, for a splendid collection of Orchids, of which a remarkably fine plant of *Trichopilia crispata* had a special certificate. *Saccolabium guttatum* and *pramosum* were remarkably fine, the former having four beautiful spikes. *Vanda Roxburghii* and *Saccolabium ampullaceum* were also fine.

Messrs. Rolission had also an extra prize for a fine collection of *Palms*, *Heaths*, *Orchids*, and other flowering and fine-folaged plants; likewise Mr. Williams, of Holloway, for a charming collection of a similar character. From Messrs. Veitch came a group in which were several fine Orchids, as *Cypripedium caudatum*, and *Trichopilia crispata* with about two dozen flowers, which had a special certificate; *Vanda Denisonie*, and *Epidendrum syringothysum*; besides which there were *Rhododendron Brookii*, several varieties of *Primula cortusoides*, and other plants. From Messrs. F. & A. Smith, of Dulwich, came a group of *Azaleas*, and another of *Calceolarias*; while Messrs. Standish & Co. sent *Rhododendrons*, *Struthiopteris japonica*, a pretty hardy Fern; and a large plant of *Eucharis amazonica*.

Mr. C. Noble, Bagnshot, received an extra prize for a group of his splendid new Clematises. Messrs. Carter & Co. sent baskets of *Princess of Wales*, *Mrs. Dunnett*, *Sir R. Napier*, and other *tricolor Pelargoniums* very neatly set up, also *Echeveria retusa glauca*, edged with *L'Elegante* Ivy-leaved Pelargonium. Messrs. Bell and Thorpe had an extra prize for six *Caladiums*, Mr. James for *Calceolarias* of a fine strain; and from Mr. Turner, of Slough, came a fine stand of *Tulips*, *Azaleas*, *Zonal Pelargoniums*, and *Auriculas*. *Bedding Pansies* were contributed by Mr. R. Parker, of Tooting. Messrs. Bell & Thorpe sent *Macbeth Tricolor Pelargonium*, and Mr. Watson, Hammersmith, forcing *Pink Alba multiflora*, both of which had before received certificates.

Messrs. Lee contributed *Adiantum capillus-Veneris magnificum*, bearing a great resemblance to *A. farleyense*, but succeeding well in a greenhouse; also a large and beautiful specimen of *Todea superba* and several handsome *Palms*. Messrs. E. G. Henderson sent *Blandfordia nobilis*, a box of *Narcissus Enlbocodium*, and other plants which were exhibited at the last show. Mr. W. Paul, of Waltham Cross, sent a very interesting collection of cut specimens of trees with ornamental foliage, and some, such as *Pyrus Malus toringo*, beautiful when in flower. To have done justice to these would have required a special report, and we can only add they well deserved inspection. He sent, besides, his *Rose Princess Christian* and *Pelargoniums*, which have been noticed in previous reports.

Several extra prizes were awarded besides those noticed, but the full list of these will be found in our advertising columns. Special certificates were given by the Floral Committee to Mr. Denning, gardener to Lord Londeshborough, and to Messrs. Veitch, for *Trichopilia crispata*; to Mr. Noble for his group of Clematis; and to Messrs. F. & A. Smith for their group of Azaleas and Calceolarias; to Messrs. Carter for their group of Pelargoniums, &c.; and to Mr. Turner, of Slough, for his collection of Tulips, also for the other plants shown by him.

Although prizes were offered for collections of fruit, there was only one exhibitor of these, Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, who had a first prize for *Enville* and *Queen Pines*, *Black Hamburg* and *Chaouch Grapes*, two dishes of *Cherries*, two *Melons*, and *Brown Ischia Figs*, all excellent for the season.

FRUIT COMMITTEE.—Daniel Nash, Esq., in the chair. Mr. Thomas Record, Lillesden, Hawkhurst, sent two boxes of President Strawberries, large and of good flavour. A special certificate was awarded to them. Mr. Merrett, gardener to Mrs. Whiting, Lavender Hill, sent a box of Keens' Seedling Strawberries also in excellent condition, to which a special certificate was awarded. Mr. Wm. Gardiner, of Elington Park, sent a collection of Apples, consisting of *Sturmer Pippin*, *French Crab*, *Reinette du Canada*, *Mère de Menage*, *Royal Russet*, *Dumelow's Seedling*, *Rymer*, and *Hanwell Souring*. A special certificate was awarded. Mr. Sage, gardener to Earl Brownlow, Ashridge, brought shoots and leaves of a Vine infested with the attacks of an insect which forms its nidus in the tissue of the leaves.

Wherever this is found to exist, the Vines should be immediately destroyed. Mr. Beale, of Messrs. James Carter & Co., offered to take photographs of any remarkable exhibitions that were submitted to the Committee, so as to serve as a standard by which to compare subsequent exhibitions; and the Committee unanimously passed a vote of thanks to Mr. Beale for his very liberal offer. Messrs. Standish & Co., of Ascot, exhibited three handsome bunches of Royal Ascot Grape. The bunches were very large, and finely coloured. He also exhibited three bunches of Mascat of Alexandria, and one beautiful dish of Sir Charles Napier Strawberries. To these a special certificate was awarded.

**FLORAL COMMITTEE.**—Rev. J. Dix in the chair. There was not such a large array of novelties on this occasion as at some of the earlier meetings, but the certificates given were tolerably numerous. To Messrs. Veitch first-class certificates were awarded for *Ficus dealbata*, with ample, stout, dark green foliage, with a greenish white midrib; *Rhapis hamilis*, a dwarf Palm; *Oncospermum Van Houttei*, a very graceful Palm; *Pritchardia pacifica*, a noble-looking Palm with large fan-shaped leaves; *Cyanophyllum spectandum* with bold leaves, longer than those of *C. magnificum*, and very ornamental; and to *Alnus glutinosa rubronerva* with coppery olive leaves with a metallic lustre, and having red leafstalks. *Alnus glutinosa aurea*, a very pretty golden-leaved variety, was also shown by Messrs. Veitch; likewise *Welfia regia*, and several other Palms; and a finely-bloomed specimen of *Azalea Antoinette Thelman*, a semi-double salmon-rose variety, with a flush of magenta in the upper petals.

Mr. Turner, of Slough, had a first-class certificate for *Azalea Roi de Hollande*, a very fine salmon scarlet, much spotted with crimson in the upper petals. He likewise sent Miss Poole Rose, and *Azalea Reine Marie Henriette*, which had been exhibited at a previous meeting.

Mr. B. S. Williams took a first-class certificate for a fine variety of *Trichopilia crispata*, called *marginata*, with the flowers edged with white. Mr. Williams also exhibited *Miltonia festiva*, very pale yellow, with a pale lilac lip streaked with brownish purple; *Clerodendron speciosum*; and *Aralia peltata*, a handsome-leaved plant.

From Messrs. Paul & Son came *Hydrangea stellata flore-pleno*, with small but pretty, very double pink heads, and which was awarded a first-class certificate.

Mr. Fairbairn, gardener to the Duke of Northumberland, sent a box of *Pyrethrum Tehichatchewii*, which has been recommended as a substitute for grass in dry situations, but it was not looked upon as at all comparable to grass for effect. A special certificate was given to Mr. Martin, gardener to L. P. Kennard, Esq., Harrow Weald, for a beautiful basket of cut flowers of the wax-like *Hoya carnosus*; and the like award was also made to Messrs. E. G. Henderson, of the Wellington Nursery, for a group of fine varieties of *Mimulus*; and to Mr. Greu, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, for an interesting group of plants, the most remarkable of which was *Elisena longipetala*, a Peruvian balsam plant, which will be referred to hereafter.

Mr. George, Patney Heath; Messrs. Bell & Thorpe; T. Laxton, Esq., Stamford, and Messrs. Veitch sent a number of seedling Tricolor and other Zonal Pelargoniums, several of which were promising. Messrs. Bell & Thorpe also sent seedling *Petunias*; and from Mr. G. MacDougall, Baldclutha, Greenock, came *My Ain Pet*, a white-variegated Pelargonium. To none of the above, however, was any award made. Mr. Rothenheim, Euston Road, London, exhibited patent blinds of a very neat appearance, but no particulars were given respecting them.

**GENERAL MEETING.**—G. F. Wilson, Esq., F.R.S., in the chair. After the election of fourteen new Fellows, and the announcement of the awards, the Rev. M. J. Berkeley said that the Iris exhibited at the last meeting by Mr. Ware, and of which no one could discover the name, he had found very nearly corresponded with one figured in Regel's "Gartenflora," and of which the rhizomes had been sent from the Caucasus to St. Petersburg; and although Mr. Ware had obtained it from Greece, it was in all probability the same as that figured by Regel. A cut flower of a Cactus shown appeared to be that of a seedling of Cactus triangularis; and as to Mr. Wilson Saunders's collection, nothing could be more interesting than the plant belonging to the genus *Elisena* of Herbert, and which, Mr. Berkeley said, was very closely allied to *Ismene Macleana*, figured and described in the "Botanical Magazine," t. 3675. To show the estimation in which the plant was held, Mr. Berkeley read the following extract from the account of the *Ismene* in the work referred to:—

"This is one of those plants so much celebrated by the Peruvians under the name of *Amancaes*. And so great a favourite is this flower with the people, that the plain at the foot of the mountains, where it grows, near Lima, bears the same name; and one of the greatest festivals at Lima, called the 'Festival of the Amancaes,' is thus described:—'The Amancaes is an annual festival, celebrated at Lima on the 24th of June; it is something similar to our May-Day; the occasion of it being the height of bloom at that time of a flower peculiar to Peru, called the *Amancaes*, to gather which, the citizens of every class, in the afternoon of the day, hasten, as a gala, to a spot in the vicinity of the city, deriving its name, as well as the festival itself, from the flower which grows more abundantly there than in any other place.'

The beautiful *Epidendrum syringothyrsum*, *Vanda Denisouie*, the Moulmein variety of *Saccolabium ampallacum*, the plants of *Tricho-*

*pilia crispata* from Messrs. Veitch and Lord Londesborough, and Mr. Williams's variety *marginata*, were then pointed out as well worthy of attention. With regard to the *Pyrethrum* with a name he would not attempt to pronounce, he could not think it would ever be so useful as the common *Anthemis nobilis*, which was delightfully fragrant when crushed under foot. The Golden Alder, the Golden Sycamore, of which there is a magnificent specimen at Chiswick, and the Golden Oak, it was remarked, would form a most beautiful group; and the *Hydrangea* from Messrs. Paul was one of the most charming little gems he had seen. What appeared to be the flowers were not so, but part of abortive flowers, the true flowers being in the centre.

Attention was next directed to two curious specimens of disease; in the one the common red *Lychnis* had been attacked by a rust, which, commencing at the root, ascended the stem and affected the anthers only; in the other, a plant of the common Goat's Beard had been attacked, but only as regards the receptacle. Various fungi were then instanced as attacking a single part only of the plant, the hunt on Wheat being one, a curious fact in the economy of such fungi. A very destructive insect attacking the Vine and causing large blisters on the leaves was then referred to as far more formidable than even the Vine mildew, and though gas water had been recommended as a remedy, he thought it probable that what would kill the insect would also kill the plant. Whenever it made its appearance he considered the best plan would be to stamp it out by burning all the Vines affected. In conclusion, Mr. Berkeley said he would again direct attention to the orchard house at Chiswick, and with the Chairman's permission, he would ask Dr. Hogg to make some remarks on it.

Dr. Hogg said he was very glad Mr. Berkeley had called attention to the orchard house at Chiswick, for he (Dr. Hogg), did not know anywhere a better example of the successful management of these structures than the Society possessed in its own garden. The house was one of the largest that had been erected in this country, its dimensions being 120 feet by 50, thus giving ample scope for trees planted out and in pots. Other advantages of houses of that size were the greater amount of moisture raised by evaporation from the soil, whilst owing to the larger body of air enclosed there was not the same risk of frost as in a small house. Mr. Barron, to whom all the credit of its success was due, in order to limit the amount of watering this year, intended to allow the mulching used to protect the roots of the trees during the winter, to remain in summer to protect them from drought. He (Dr. Hogg) could not recollect ever seeing a house in which there was a larger amount of fruit than in that at Chiswick, and, notwithstanding the discussion which had taken place on the question of orchard houses, he did not know a more valuable structure in a garden than a well-managed orchard house.

The Chairman having remarked on the beautiful appearance the trees presented when in flower, closed the proceedings by announcing that the next two meetings would be held on the 5th and 29th of June respectively.

## THE ROYAL HORTICULTURAL SOCIETY AND PERMANENT INTERNATIONAL HORTICULTURAL EXHIBITIONS.

In accordance with a notice which appeared in our last issue, a meeting was held in the Council Room at South Kensington on the 13th inst., the Duke of Buccleuch, the President of the Royal Horticultural Society, being in the chair. The object was to consider the regulations to be adopted at the meetings and exhibitions of the Society in connection with the Annual International Exhibitions of Selected Works of Art and Scientific Inventions, the first of which is to be held in 1871.

The Chairman having stated the object of the meeting, Colonel Scott read the scheme, and said the points on which assistance was asked were—1st, The bi-monthly shows. 2nd, The carrying out of the continuous shows. 3rd, The mode of judging. The question was asked, Whether it was intended to follow the schedule of the present year? and the answer being in the affirmative, and it having also been suggested that the dates of holding the shows should be as nearly as possible those at which the flowers forming the main subject of them were naturally in perfection, Dr. Hogg submitted that the regulations should be taken as read, a short pause being made between each to allow of suggestions being made. The whole of the rules relating to the shows were then passed almost without discussion, and so were those of the Fruit and Floral Committees, and the schedule of the present year was adopted as the basis of that of 1871.

With regard to the permanent exhibitions, the Chairman having asked for remarks and suggestions, Mr. Wilson Saunders said the bi-monthly shows should be supplemented by permanent exhibitions, and the space over the arcades should be filled by exhibitors who would have the right of selling plants not to be taken away till the next day, when they could be replaced. The awards for such exhibitions to be medals. Dr. Hogg asked whether these exhibitions were to be competitive—for instance, if two Rose growers were to exhibit, was an award to be given to one for the best exhibition, or to both for highly meritorious exhibitions? Colonel Scott thought that it would be impossible to have competitive exhibitions in conjunction with continuous exhibitions, and after some remarks from the Chairman, the Bishop of Winchester, and Mr. Wilson Saunders, the subject dropped.

The Chairman then asked whether it was the opinion of the meeting

that the permanent horticultural exhibitions should be supported, and it was carried unanimously that they should be.

With regard to the selection of the Judges, Mr. Standish thought they ought to be taken from the Fruit and Floral Committees, and selected for the subjects with which they were best acquainted. Calouet Scott inquired if it was the feeling of the meeting that the Judge should be selected by nomination or by election? Mr. Paul said he was aware there was a feeling among exhibitors that they should nominate the Judges, but thought it fair and sound that the Council should select them. Mr. Wilson Sanders said the subject was of great importance, but the feeling of the Council was, that the exhibitors wished to appoint their own Judges; they should do so; if they wished the Council to select, the Council would do so.

The Chairman then put the question if the nomination of the Judges should be left to the Council, and it was carried that it should be so.

With regard to the permanent exhibitions it was agreed that Col. Scott should suggest certain rules, that the Council should come to resolutions on the subject, and that these should be placed before a future meeting.

Col. Scott remarked he had not had time to enter into details; but with regard to the foreign department, which was to be kept separate from the English, the French Commissioners had asked for a certain space and undertaken to keep it. The names of these Commissioners are MM. Dronay de Lhuys (President), Riviere (Secretary), Decaisne, Hardy, Leroy, Tissot, De St. Maria, Tisserant, and Vilmorin. Col. Scott further stated that it was the intention of the Council to apportion £1000 to the bi-monthly shows, £250 to the foreign exhibitors, and £250 to the permanent shows. It was then agreed, on the proposal of the President, that the further propositions the Council might make should be submitted to a subsequent meeting.

## THE EGERTON HUBBARD PRIZE ESSAYS.

PRIZES were lately offered by W. Egerton Hubbard, Esq., for the best essays on cottage gardening and window gardening. The first named subject to which the prize was given was written by Mr. E. W. Badger, of the Midland Counties Herald Office, Birmingham, and is entitled "Cottage Gardening." The essay on the other subject to which the prize was awarded, was written by Mr. H. Bottery, 1, Park Terrace, Cavendish Road, Clapham Park. It is quite sufficient praise of them to say that they well deserved the prizes, and that they are trustworthy guides. That by Mr. Bottery is very brief, but fuller details may be obtained from Mr. R. Fish's little book on the same subject, and bearing the same title—"Window Gardening." We will give a brief extract from each of the prize essays. The first is from "Cottage Gardening."

"Trenching is thus performed:—From one end of the plot to be dug, take out a trench 20 inches wide and two spades deep, wheeling the earth to the other end of the plot. Mark off, with the spade and line, the whole of the ground into widths of 20 inches. Then commencing at the one nearest the trench already opened, fill into it the surface soil, or 'top spit' as they are called, of what is to be the second trench; next, throw the bottom spits of No. 2 trench over the top spits placed in No. 1, in such a way as to form a shaggy-pointed ridge, thus A. Fill up No. 2 with the soil from No. 3 in the same manner, and so on to the end. Manure should be dug in during this process, in greater or less quantities, according to the condition of the soil as to richness or poorness.

"The object of trenching is to thoroughly loosen the soil to a depth of 20 inches or more, so that its particles may be well mixed together, to make the texture uniform throughout; and to give the air free admission to it, which will enrich the soil with a store of oxygen, &c. By mixing the less used subsoil with the exhausted surface soil exhausted by the crops it has borne, trenching replenishes it and fits it for work again."

Our next extract is from the essay on window gardening.

"Position of plants with reference to light:—Small, round, compact-leaved plants, or any that it is desirable to keep in uniform shape, must be turned partly round daily, so as to expose all parts of the plant equally to the light; but large permanent window plants, that are intended to form a screen or blind to the window, may be left always in the same position, so as to form one good face. Plants standing in very sunny windows, especially if on the outer sills, will be much benefited in hot summer weather, by having placed in front of the pots a board to represent the face of a window box; this will keep the extreme heat of the sun from scorching the roots, and the plants will require less water, and will last longer in perfection. An actual box for the plants to stand in would be still better, filling in the spaces between the pots with moss, which may be kept moistened."

For distribution, copies of the essays stitched together may be had in packets of twenty-five for 5s. Application for them to be made to J. Richards, Esq., Assistant Secretary, Royal Horticultural Society, South Kensington.

## PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

*CLAVIA MACROPHYLLA* (Large-leaved Clavia). *Nat. ord.*, Myrsinac. *Lin.*, Pentandria Monogynia.—Native of Brazil, near Rio. Noble cool stove plant. Flowers orange. — (*Bot. Mag.*, t. 5829.)

*STYLOPHORUM JAPONICUM* (Japanese Stylophorum). *Nat. ord.*, Papaveraceae. *Lin.*, Polyandria Monogynia. — "An elegant hardy perennial, closely allied to our Greater Celandine, but with flowers (yellow) twice as large." — (*Ibid.*, t. 5830.)

*NARCISSUS BULBOCODUM* var. *MONOPHYLLUS* (Single-leaved Hoop-petioled Narcissus). *Nat. ord.*, Amaryllidaceae. *Lin.*, Hexandria Monogynia. — "A very elegant little plant," native of Algiers. Flowers white, tinged with lemon. — (*Ibid.*, t. 5831.)

*RHYNCHOTECUM ELLIPTICUM* (Elliptic-leaved Rhynchotecom). *Nat. ord.*, Cyrtandraceae. *Lin.*, Didynamia Angiospermia. — Native of Sylhet, in Eastern Bengal. Probably biennial. Flowers bright pink. — (*Ibid.*, t. 5832.)

*ORTHOSEPHON STAMINEUS* (Long-stamened Orthosephon). *Nat. ord.*, Labiate. *Lin.*, Didynamia Gymnospermia. — Native of Assam, Eastern Archipelago, and North-east Australia. Resembles a *Clerodendron* in its inflorescence. Flowers bluish-lilac. — (*Ibid.*, 5833.)

*VANDA CARULESCENS* (Pale-blue Vanda). *Nat. ord.*, Orchidaceae. *Lin.*, Gynandria Monandria. — Native of Burmah. Flowers pale blue, lip purple. — (*Ibid.*, t. 5834.)

*ACACIA RICEANA* (Mr. Spring-Rice's Acacia). *Nat. ord.*, Leguminosae. *Lin.*, Polygynia Monoclea. — By far the most beautiful (greenhouse) Acacia of Tasmania. It has long pendulous branches clothed with golden flowers. — (*Ibid.*, t. 5835.)

*ARENARIA FURFURASCENS* (Purple Alpine Sandwort). *Nat. ord.*, Caryophyllaceae. *Lin.*, Decandria Monogynia. — Native of the Pyrenees. Flowers white, ovary and stamens crimson. — (*Ibid.*, t. 5836.)

*GREVILLEA PREISSII* (Preiss's Grevillea). *Nat. ord.*, Proteaceae. *Lin.*, Tetrandria Monogynia. — Among the many beautiful hardwooded plants of Western Australia, none exceeds this in elegance of foliage, or sparkling colour of flowers. Flowers greenish yellow and crimson. — (*Ibid.*, t. 5837.)

*CYCLOSTOMA MYRICOIDES* (Myrica-like Cyclostoma). *Nat. ord.*, Verbenaceae. *Lin.*, Didynamia Angiospermia. — Native of tropical and sub-tropical Africa. A shrub; flowers pink, white, and blue. — (*Ibid.*, t. 5838.)

*HERNANDIA HERCENIOTIANA* (Machian Hernandia). *Nat. ord.*, Hernandiaceae. *Lin.*, Monachia Triandria. — Native of the Pacific Islands. Flowers buff. — (*Ibid.*, t. 5839.)

NEW VARIETIES OF *FUCHSIA*.—"It is quite evident that the well-directed efforts of E. Banks, Esq., in the raising of new varieties of Fuchsia have been crowned with the most complete success, and that he is now far ahead of all rivals in this particular field. The improvements which Mr. Banks has been carrying on step by step for nearly thirty years have culminated, so far as the public are permitted to share with him, in *Splendour*. We use the foregoing qualification, because it is, as we learn, an axiom with this grower never to part with any new variety until he has obtained a better one of the same type. The dark-coloured varieties we now notice are novelties from Mr. Banks's collection, and in the hands of Mr. Cannell for distribution, while the double white is a portrait of one of Mr. G. Smith's new varieties.

"John McElroy is considered to be a grand improvement on such sorts as Lord Derby and Lord Elohe. The sepal is broad, thick, and well reflexed, and the very long barrel-shaped corolla is of large size, and of an intense violet, occasionally striped. *Splendour* has the largest, intense dark purple corolla of any variety yet sent out. In some blossoms which we measured in the autumn of last year the diameter of the expanded corolla was fully 3 inches. It has a bright scarlet tube, with sepals of the same colour, reflexing to form a perfect crown, and of great substance, while the plant is a strong bushy grower, and a free bloomer. *John Bright* is an improvement on *Beauty of Sholden*; the reflex of the fine, stout scarlet sepals is perfect, while the mauve-tinted, cup-shaped corolla is the most regular and perfect of any variety of that colour. *Ara-lanche* is certainly one of the finest double whites which have yet been produced. It comes from Mr. G. Smith's collection, and, as shown by him, was of excellent free-blooming habit, with very large and very full blossoms, the sepals being of a somewhat rose tint of scarlet, and the corolla large, dense, regularly formed, and of the purest white. No finer Fuchsias than these, in their respective sections, need be desired." — (*Florist and Pomologist*, 3 s., iii., 73.)

## TILLANDSIA LINDENIANA.

THIS is one of the most beautiful Bromeliads ever introduced to European gardens, and of which ours, or any woodcut must

fail to give an adequate idea. It was exhibited before the Floral Committee at the gardens of the Royal Horticultural Society a fortnight since, and deservedly received a first-class certificate. That plant, which is the subject of our illustration, was grown and exhibited by Mr. B. S. Williams, of the Victoria Nursery, Upper Holloway, and is the first of its kind that has flowered in this country.

The leaves are from 12 to 18 inches in length, and about 1 inch in breadth, tapering upwards, and ending in a fine point. They are dense, sheathing at the base, arranged in a rosulate manner and recurved, channelled above and light green, beneath tinged with rose, and streaked with fine longitudinal

lines of reddish-brown. The scape rises from the centre of the plant, and attains a height of 18 or 20 inches, the upper portion broadly ovate, which is caused by its being clothed with long distichous imbricating bracts, which are light green, more or less suffused with rosy-pink. The flowers, which are round and of good substance, are produced from between the bracts, measuring nearly 3 inches in diameter, the colour is rich blue, the centre being pure white. The flowers of this elegant plant are very attractive, and are specially valuable on account of its colour being so rare amongst stove plants.

*Tillandsia Lindeniana* is a plant easily cultivated, and may be grown either in a pot or basket, but when in pots it can be



used for the decoration of the dinner-table, for which it is eminently adapted. The pots must be somewhat small, and well drained. The soil should be composed of two parts of rough peat, one part of loam, and one of sand. This plant, like many other Bromeliads which have broad sheathing leaves, is adapted by nature to retain water, and the water should be poured into these receptacles and not emptied out, as is too frequently done in the cultivation of this class of plants. It is

a native of Huanabamba, in Peru, where it grows upon the branches of the forest trees. It has been called in some Continental gardens *Tillandsia cyanea* and *Vriesia Lindeniana*.

In addition to the *Tillandsia Lindeniana*, there are now at Mr. Williams's nursery the *Cochlostoma Jacobianum* and many other new plants, and a most extensive collection of young Palms. *Azaleas* are also opening splendidly, and the Orchids are making a fine show.

### THE ARCHIMEDEAN MOWING MACHINE.

LIKE "ARCHIMEDEUS," I have nothing to gain by speaking in favour of the Archimedeus lawn mower. Improvements in all

kinds of machinery, &c., are being constantly sent out to the public, but few are so advantageous as this mower; it is easily

worked both on croquet ground and sloping banks, some of the latter here are almost perpendicular. A small machine has been in use with us from the commencement of the mowing season. I felt uneasy at first as to the extra labour of sweeping, but my mind was soon at rest, for after doing its work admirably in a heavy dew, the sun had destroyed all trace of the cut grass before midday. As the machine is but a small one, it is only used where the tedious scythe was formerly employed, but the men have an idea that one could do all the mowing in less time than a man and pouty, with a boy to lead, can do it with another machine of double its size. After the recent rain we may expect the grass to grow much faster than of late, other work will require attention, and, if at all pushed, I intend trying its powers in what I term the double length.—G. R. BAKER, *Gardener, Caterham Court, Surrey.*

## NOTES AND GLEANINGS.

MESSRS. BARR & SUGDEN, of King Street, Covent Garden, have sent us a number of cut flowers of various kinds of NARCISSEUS, many of them very showy, and others delightfully fragrant. There is much doubt as to what constitute species, what mere varieties in this genus, it being, in fact, in a state of confusion. Among the forms most noteworthy of those received from Messrs. Barr & Sugden were the Hoop Petticoat, Sulphur Phoenix, Orange Phoenix, Narcissus biflorus, N. incomparabilis albus flore-pleno, that called N. Ajax albicans, and there were several well-known kinds, as the Jonquille, Daffodils, and Narcissus poeticus.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

DURING showery weather, which we are now likely to experience, it is difficult to keep down effectually the seedling weeds; no sooner does the bright sunshine tempt one to cut them up than frequently down pours a shower, and starts many of the tenacious-living things into renewed activity. To remedy this, it is an excellent plan, after hoeing through such crops as Carrots, Onions, and Parsnips, to choose a fine bright morning a day or two afterwards, and to go over the whole with a long-toothed iron rake. This disturbance will generally kill the weeds, and is, moreover, of great benefit to the crops by throwing the surface open to receive the full benefit of atmospheric influences. Recent plantations of *Asparagus* and *Sea-kale* must be kept moist. A slight coating of rotten leaves over the bed will be beneficial to them. Prick out *Celery*, and keep it well watered. Keep the seed-beds of *Cauliflowers* and *Winter Greens* free from weeds, and let the young plants be thinned and transplanted if too thick. Keep the ground loose and open about young plants. Sow Dwarf Kidney Beans and Scarlet Runners for succession, and transplant those which have been forwarded, if not already done. Sow, also, *Jerusalem Kale* and the old English *Colewort*, both very useful for planting after Potatoes. Prick out *Cape Broccoli* and late *Cauliflowers*. Make another sowing of Miller's Dwarf White Russian Broccoli; this will come into bearing at the end of April and the beginning of May. Keep all seedling crops well dusted with quicklime. Let ridge Cucumbers be planted without delay, and shade for a few days. At the same time a few lights may be sown with seeds of *Vegetable Marrows* and *Cucumbers* for succession, and for Gherkins. For the latter purpose on warm soils seeds sown in the open border will suffice, but on colder soils it is better to forward plants in pots, and have a sloping bank thrown up facing the south; plant them near the top and train the stems downwards, stopping them occasionally. Keep up successions of *Spinach*. Sow another good breadth of *Turnips*, and thin-out those advancing. Endeavour to keep them in a healthy quick-growing state, which is one of the best preventives against the early-sown ones running to seed.

### FRUIT GARDEN.

Peach and Nectarine trees affected with the green fly and curled or blistered leaves, should be well syringed with strong lime water from a garden engine, or for the same purpose a good wash may be made by boiling in water 2 lbs. of tobacco, 2 lbs. of soft soap, and 2 lbs. of sulphur; boil for one hour and strain through a fine sieve, then add sufficient water to make in all twenty gallons, and sprinkle the trees with this in the evening after the sun is off them. Continue to nail-in the young shoots of all kinds of fruit trees as they become sufficiently advanced, and keep the finger and thumb at work among superfluous shoots. Give the Strawberry beds a final

stirring, and have some material at hand for laying about them to prevent the fruit from getting dirty. Straight wheat straw is often used. Keep a number of figure-4 traps constantly set about the beds, as there are no greater destroyers of Strawberries than mice.

### FLOWER GARDEN.

Examine recently-transplanted trees and shrubs frequently, to see that they are progressing favourably. Give a liberal soaking of water where necessary, and stir and mulch the surface afterwards. Half-hardy plants now being consigned to their summer places after many months' shelter under glass, and much attention and care, must be duly attended to with water until they lay hold of the soil, and with the present favourable weather and proper attention, they will speedily cover the bed, and will repay all the trouble that has been bestowed upon them; but every effort must be used to prevent their sustaining any check, for if allowed to fall into an unhealthy state at present, there will be great difficulty in inducing free growth without much loss of time. Spare hand-glasses will now be used for the propagation of favourite spring-blooming plants—as Pansies, Phloxes, &c. These do best in a shady border. Let what beds yet remain to be filled be prepared with as much expedition as possible for the reception of their summer occupants. All annuals should be thinned out as soon as they are well above ground, for if left to grow too thickly they will spoil one another, and never make half the display plants do that are allowed plenty of space, and which are grown strongly from the first. Let the rising shoots of gross herbaceous plants be thinned out where crowded. Many of these decay prematurely in dry summers through the exhaustion caused by the plants being overgrown. Thinning Dahlias should be finished. Masses of American plants under or near large trees should have a top-dressing of some kind to keep them cool, and to compensate for the exhaustion occasioned by the roots of the trees. A coating of bog earth or half-rotten leaves will be suitable. Conservatory walls, trellises, or ornamental arcades should have close attention at this period. The roller and scythe, or mowing machine, will be in frequent request, and much labour is involved in these operations if properly carried out. See that edgings hitherto neglected are put in order for the summer; do not, however, cut beyond the original boundary, and keep the walks filled with gravel. Let the roller be passed frequently along the edges in order to level down to the walk; this takes away the harshness of the outline.

### GREENHOUSE AND CONSERVATORY.

Where circumstances admit of it, plants that have been grown in a warm, moist atmosphere, should be removed to an intermediate house about a fortnight previous to their being taken to the conservatory, and gradually inured to a free circulation of air. By attention to this, and placing the plants in the warmest corners, *Clerodendrons*, *Alamanadas*, *Achimenes*, &c., will continue growing slowly, and bloom for some three months, whereas if this is neglected their beauty may be very short-lived. Aim at maintaining an even temperature in the conservatory after removing to it plants which have been grown in the stove, and avoid allowing the atmosphere to become very dry on bright warm days. Also see that every plant is perfectly clean before placing it in this house, and that the creepers, &c., are not infested with insects. Go over the house every morning, and remove decaying flowers and leaves as they make their appearance. Young stock in pits and frames will soon be making rapid growth, and must be carefully attended to as to watering, stopping, training, &c. Examine Heaths frequently for mildew, and apply sulphur the moment it is observed, some of the soft-leaved varieties being very liable to be attacked by that pest at this season. If the permanent occupants of the beds, and the twiners, however, are such as require a free circulation of air, the house must not be kept so close as to injure them, but when Passion-flowers, Ipomaeas, Mandevillas, Tecomas, Begonias, &c., are grown for covering the roof, and Orange trees and other things that enjoy a fair amount of warmth and moisture while making their wood, occupy the beds, the bairdier stove plants will form the most suitable decoration for the next three months. Go over twiners frequently, and regulate their growth before the shoots become entangled, but avoid keeping them tied too closely, for they are never seen to advantage unless they are allowed to hang in a natural and graceful manner.

### STOVE.

Sustain the humidity of the house, at the same time permit adequate ventilation. Climbers must be attended to frequently.

Achimenes grown in large seed pans produce a fair effect. Shift frequently these plants required for autumn blooming.—W. KEANE.

## DOINGS OF THE LAST WEEK.

### KITCHEN GARDEN.

UNTIL the 12th we had sharp frost every night, and very changeable days. Owing to the dryness few plants suffered, but growth was at a standstill. Since then we have had some genial showers.—on one night some hours' rain, and most fortunately no frosts with or after it, so that everything looks refreshed. Of course we use the word fortunately in its common acceptance, it being clearly understood all the time that these matters are regulated by an All-wise Providence. There is much beyond our control—we cannot command the wind or the rain, but still as respects the warmth and the moisture of a district, and the command of water stored up in solitary cases, much is left to man's energy and forethought. Trees not only afford shelter, but they attract moisture. In a clear morning we have seen as much condensed moisture from three large Beech trees as would soon fill a moderate-sized tank. It has been wisely as well as benevolently arranged, that a healthy and a happy existence for man depends on thinking and working.

*Moisture for Seeds.*—Where ground is scarce much will depend on succession cropping, so as to have a regular supply without a glut now and a scarcity afterwards. We have no faith in trying people of any one thing, nor in having anything in such abundance as to make it appear to be of no value. We never recollect seeds remaining so long in the ground without appearing above it, and this made us a little anxious about regular successions of Peas, Beans, and other vegetables. It is seldom that such crops want artificial watering in the early part of the season, there being generally enough of moisture in the soil to serve all the purposes of germination and early growth. The coldness of the soil and the dry air were the chief drawbacks. We thought several times of watering on a dull day, but then to do any good we must have moistened deeper than the seeds, and in such frosty nights, and yet sunny days, the soil would be made colder than before. The rain, with a cloudy sky and a rising thermometer, saved us all anxiety in the matter. Lately we have several times alluded to the failure of seeds in beds, pots, &c., because, though enough of moisture was given for germination, there was so much dryness afterwards that the vital powers were destroyed and the seeds were fairly excited into development. Such a result will rarely take place in sowing seeds out of doors in the spring and in the early months of summer. In particular cases the mode adverted to at page 344 may be resorted to, and the small drills watered before sowing. In general, and especially in field practice, the same result will be secured, however dry the surface soil, by going deep enough to place the seeds on the damp soil beneath. However dry the mere surface in these early months, there will always be found moist soil at no great distance from that surface. With a dry surface and unimpeded evaporation the sun will bring up moisture from beneath so long as there is any to bring, just as a good pump properly worked will discharge water as long as there is a supply of water in the well. A right understanding of this would lead to more care in watering, and also to more care in sowing.

We have known very achy, irregular, and defective germination in gardens and fields owing to forgetting simple matters like those alluded to. For instance, here is ground with the surface very dry to the depth, say, of from 1 to 2 or more inches. Previously to sowing we turn it over to such a depth, and bring up so much moist soil to the surface. In sowing we thus place the seeds in the dry soil. The moist soil on the surface, until thoroughly dried by evaporation, will prevent the dry soil beneath becoming moist by the absorption of moisture from beneath. Need we wonder that the seeds will irregularly come up irregularly, and some are so injured as never to come up? If the dry surface must be interfered with before sowing, it would be in every way better to scuff it as thinly as possible, and still leave it at the surface, and then by drilling place the seeds at once on the moist soil beneath. When quickly covered with the dry soil it will be long before that moist soil beneath becomes inordinately dry so as to prevent free germination and early growth. Anyone may be convinced that moisture rises freely by placing a large close bell-glass firmly on the surface of dry ground, so that there shall be no inlet or outlet for the glass. After a bright, sunny, warm day, and a clear cool night, he will find a good deal of moisture from condensed

vapour inside in the morning. We have known cases where two men obtained seeds from the same shop, and one was as wroth with the seedman as the other was full of his praise. In the one case the seeds had justice; in the other they were dried up, and, if they came up at all, came up irregularly.

Earthed-up succession Calceolae to keep them firmer, and sowed successions of various crops, adopting the good old plan, in the case of Peas, Beans, Turnips, Radishes, small saladings, &c., of sowing again as soon as the previous sowing was above ground. There are three matters which we must note.

First, *Asparagus Kale*, as a spring vegetable, is not grown so much as it ought to be. We know no green in spring that will compare with it for delicacy of flavour.

Secondly, We have recommended the *flower heads of Sea-kale* to be used, and they are very good, but if they are cut when close and firm, like little heads of Sprouting Broccoli, they are far better. We would prefer them even to the finest shoots of blanchet Sea-kale. They have the sea flavour, and are very excellent. Except when seed is wanted, the sooner such flower heads are removed the better it will be for the plants and the beds for next season. Owing to the dryness, our plants are throwing up more flowering shoots than usual. We have seen barrowloads of such flower shoots taken to the rubbish heap. If they are cut when young, compact, and close, those who try them will find they are at least equal, we think far superior, to the finest Sprouting Broccoli.

Thirdly, People should not too soon despair of *Mushrooms*. We generally put up three pieces in succession in an open shed in summer, the first of which will soon be ready for spawning. The latest put up last season gave us gatherings in October and the beginning of November. After that, the weather being cold and the house beds coming in, it was left to itself all the winter, with a sprinkling of litter over it; too little to encourage any Mushrooms appearing, not quite enough to keep out frost. About a month or six weeks ago the bed was well watered with manure water at from 90° to 100°, and more litter put on to keep in the heat; for some weeks the bed was, and it is even now, covered with fine fleshy Mushrooms. We find watering has always most effect when the material of the bed is rather long and fresh, instead of more compact and rotten when used.

### FRUIT DEPARTMENT.

Some of our Cherry trees on the wall that seemed to be setting freely, have had the young fruit nipped off as soon as the blossom had fallen. As yet we do not know what to blame, but there are fine trusses of stalks left, and the point or the fruit gone. We can understand all this perfectly when the fruit is ripening, but what could be the enticement to thus clear off the newly-formed fruit? Though we have watched, we have hitherto failed to detect who or what is the thief. Have any of our readers noticed anything similar? We know that tomtits will make holes in fruit when it is less than half grown, but hitherto we have not known them nip off Cherries so thoroughly just when formed. The tits are now so busy looking after insects, that we should not like to blame them without proof.

*Wasps.*—We have already seen some half a dozen wasps, notwithstanding the cold nights, and succeeded in catching them. If many more appear we shall place bottles containing something sweet to entice them, as every wasp taken or destroyed now will be a net loss in summer and autumn.

As so far confumatory of what we have said of moisture beneath, and what was stated lately of moisture in dry weather to foliage, when not needed at the roots, we may mention, though without at all approving of the practice, that some Peach and Cherry trees planted about the third week in April are seemingly doing well. They had stood thickly together some time previously with the roots merely covered with earth, technically, "put in by the heels." On planting in fresh soil, after carefully packing the fibres and firming moderately, a good fair watering was given with water at from 80° to 90°, so as to warm the soil about and near the roots. The drier soil was then placed on the surface, a small basin formed, and the top mulched with dark-coloured rotten dung. Though the surface soil became dry no more water was given, as we knew there was moisture enough beneath, but a few branches of spruce fir that had lost all the foliage were placed in front and round them, just to break a little the force of the sun's rays, and in very sunny days the trees were sprinkled overhead once or twice with the syringe.

Every contemporary is now dwelling on the importance of thinning the shoots of wall trees. We were so afraid of the

frost, having no covering, that with the exception of some foreright shoots we have not touched Peach and Apricot trees on walls. As the weather is now becoming milder, we shall most likely go over our trees in the beginning of the week. The shoots greatly protect the young fruit, and as yet in our cold place have done no harm.

#### ORNAMENTAL DEPARTMENT.

The rains enabled us to mow, which it was next to impossible to do, owing to the hardness and dryness of the ground. We just kept the lawn green by switching off the Daisies with the long-handled knife, as several times referred to. We have also begun, and will try to finish, cutting the sides of walks for the season. This one cutting in spring makes all straight, and renders clipping with the shears more easy all the summer. It is much easier to use the edging iron after a good rain.

We have managed to complete much potting. We hear of planting out in flower beds. We shall shortly begin to prepare the beds, but we shall not be in any hurry with final planting. This night, the 13th, is the first that we have left the bulk fully exposed. The showers expected will do good. As most of the plants are turned out into soil, are growing freely, and will lift with balls, we feel no necessity for hurrying, and we can protect them if necessary much more easily where they are, than if in beds. The frequent moving involves labour, but then we save in watering, and the plants get forward and bloom early, matters of importance when the family seldom leave home. Calceolarias are showing bloom freely, and will never suffer, at least to any appreciable extent, from the moving. This temporary bedding-out would not do for nurserymen, but it suits well where the plants are not to be carried far to the flower garden.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending May 17th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed... 11	29.577	29.489	61	43	50	47	S.W.	.24
Thurs... 12	29.526	29.329	62	46	52	47	S.W.	.16
Fri... 13	29.498	29.540	61	45	52	48	S.W.	.00
Sat... 14	29.515	29.363	64	24	53	48	S.W.	.00
Sun... 15	29.503	29.850	64	41	53	48	S.W.	.10
Mon... 16	30.148	29.635	66	32	54	49	S.W.	.11
Tues... 17	30.188	30.115	66	32	53	49	S.	.09
Mean...	29.551	29.471	63.43	39.43	53.43	48.00	..	0.76

- 11.—Overcast, fine; slight rain; heavy rain.  
 12.—Cloudy; boisterous; clear and fine.  
 13.—Stormy; exceedingly boisterous; clear at night.  
 14.—Overcast, stormy; fine; very fine.  
 15.—Cloudy; fine, heavy clouds; slight rain.  
 16.—Slight rain; cloudy; clear at night.  
 17.—Very fine; exceedingly fine; cloudy but fine.

#### TRADE CATALOGUES RECEIVED.

John & Charles Lee, Royal Vineyard Nursery, Hammersmith.—*Spring Plant Catalogue.*

E. G. Henderson & Son, Wellington Road, St. John's Wood, London, N.W.—*Spring Catalogue of Plants for the Store and Greenhouse, including Orchids, Ferns, Bedding, Soft-wooded, and New Plants.*

#### TO CORRESPONDENTS.

\*.\* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

N.B.—Many questions must remain unanswered until next week.

ENTOMOLOGICAL SOCIETY (J. D.).—Communications should be directed to 13, Bedford Row, London, W.C.

MUSHROOMS (E. Gilbert).—Your Mushrooms are remarkably fine. We have often had occasion to remark the wonderful size to which your "buttons" are produced. They have the appearance of being a variety different from that which is usually cultivated.

ORNAMENTAL CORNWART (P. B.).—We think it would be very effective for garbishing daisies. The best mode of sending specimens of plants in post is to put them in a small tin box between films of damp moss. The specimen sent was *Prunus spinosa* flore-pleno.

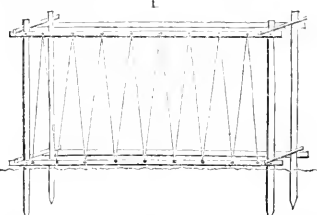
OVYSTER PLANT (*Beckenham*).—We cannot help you. You must wait until the Glasgow nurseryman advertises. The roots of Salsify have the flavour of oysters. It is a kitchen-garden plant. We cannot name plants from leaves only.

ROSE NOT EXPANDING FULLY (Mrs. N.).—I wish the lady had stated the name of the Rose sent. It was given in a state of decay. It looked like Caroline de Sual or La Tour de Grouy. The former is not in all situations a tree bloomer; the latter rarely expands well. The reason why the bloom sent did not open, is its being malformed at the centre, something like Roses that have green centres. I recommend the lady to procure *Marquise de Mortemart*.—W. F. HANLEY.

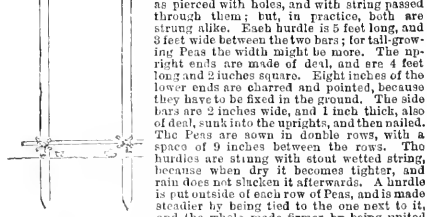
ANTHEMIS AND SODA FOR WEEB-DESTRUCTING (*Dorchester*).—Provided the walks are firm enough not to admit of the poultry scratching after grit, you need not fear any injury befalling them. Mr. Record has frequently seen both bantams and pigeons picking up grain thrown on the walks within half an hour after the application of the poison in the situation, and they were not injured. As an extra precaution for dogs and other animals, it would be as well to first clear the walks of anything cutting to them by a good weeping; but from anything they or poultry, pheasants, &c., may pick up which he found his way on the walks after the application of the mixture, Mr. Record says they will receive no harm.

EMIGRATION (Philip).—We never venture to advise an intending emigrant where to seek a new home—we do not accept such a responsibility. We advise you—we advise all intending to emigrate—to enclose three postage stamps to Messrs. Clowes & Sons, 14, Charing Cross, London, W., and request to be sent to the proper direction by post, which it will be free, "Information for Emigrants to the British Colonies, issued by H. M. Emigration Commissioners." It is full of trustworthy information.

PEA SUPPORTS (J. F. C.).—The plan you refer to is this. We have had the following in use without repair for several years, and can strongly



recommend them. The only alteration we find desirable is that, instead of having the supporters fixed upright, as in the sketches, they should lean inwards, and their tops touch in this manner. A. We paid expense for each hurdle of unplanted deal, and had it painted over with coal-tar. To prevent confusion in the drawing, we have only shown one of the hurdles as pierced with holes, and with string passed through them; but, in practice, both are string alike. Each hurdle is 5 feet long, and 2 feet wide between the two bars; for tall-growing Peas the width might be more. The upright ends are made of deal, and are 4 feet long and 2 inches square. Eight inches of the lower ends are charred and pointed, because they have to be fixed in the ground. The side bars are 2 inches wide, and 1 inch thick, also of deal, sunk into the uprights, and then nailed.



The Fens are sown in double rows, with a space of 9 inches between the rows. The hurdles are strung with stout wetted string, because when dry it becomes tighter, and rain-tight, and the whole made firmer by being united to those opposite, by pieces of string 1 foot long, tied as shown in No. 2. The plant you sent is *Fuchsia viridissima*.

FORCED STRAWBERRIES (J. S.).—It should have been 5s. per lb., which is the wholesale price as nearly as can be ascertained.

PERENNIALS TO FLOWER EARLY IN SPRING (E. T. H.).—The following are good for planting in autumn after the beds or borders are cleared, and they ought to be in every mixed flower border. *Alyssum saxatile* and its variety compactum, *Arabis alpina* and its variegated form, *A. mollis*, *Aubrietia deltoidea grandiflora*, *Cerianthus longistylis*, C. Marshalli, *Draba aizoides*, *Eritrum alpinum*, *Ficaria ranunculoides* and its double variety, also the double white; *Thalictrum*, P. Nelsoni, P. procumbens, *Fulmaria mollis*, P. officinalis, *Silene scutellaria*, *Trollius europaeus*, *T. asiaticus*, *Viola cornuta*, V. lutea; *Violeta*, single and double Russian, single white, and Neapolitan; *Polyanthus* single and double; *Primulae*, double yellow, double white, single yellow, double lilac, double crimson, and double purple or red; *Hesperis*, double and blue, single white, single blue, single white; and *Ononis*, double crimson, pink, white, and double German in variety. That called *Bella perennis acaulis*, with gold-marked leaves and crimson flowers, is very handsome.

VINE LEAVES SCORCHED (A Constant Reader).—The leaves have the appearance of being scorched, probably through the sun's rays striking powerfully on them whilst wet. We are confirmed in our opinion by the scorched being all on one Vine at the east end of the house. It might have been prevented had air been given sufficiently early to dissipate the moisture on the leaves before the sun shone strongly. Give air earlier and a little at night—not much, but a little has a great effect in preventing scalded berries and scorched leaves; besides, it will be otherwise of advantage now the Grapes are ripening.





Peaches, especially at the back and front, with a walk in the middle, and for pot strawberries if placed near the front glass, or near the top of the back wall. Of course if you want to heat the house that is a different affair. With a stove or small fire the house would hold many flowering plants, with a flat shelf in front and a raised stage behind. The Peaches falling after rotting when of the size of Walnuts, is a proof that the house is too moist, too shaded, and the soil rather wet. Liquid manure is good where strength is wanted, but it should be given clear and weak. Then all kinds are good. Gumbo 1 oz. to the gallon, superphosphate of lime, 3 ozs. to the gallon, a peck of soot to 35 gallons, a bushel of sheep, deer, or horse droppings to 35 gallons, letting the liquid stand until clear.

**INSECTS.** (C. C. P.)—No. 1. I are the eggs of the common Lackey Moth, of which the caterpillars found under a web, were the young; No. 2 is a mass of wax, probably the remains of a queen's cell; No. 3, most probably gnawed by the weevil *Otiorhynchus sulcatus*; No. 4, mistaken for a cocoon, is a bit of dried spider. (L. E.) (Shifnall).—The insect eating the leaves of your Peas and Beans is the Striped Pea Weevil, *Ceutorhynchus lineatus*. See page 346 of our last number.

**NAMES OF PLANTS (D. M.).**—Adiantum, probably pedatum, but too young to name properly; 2. A young seedling without fruit. The *Tecoma jamaicensis* is evergreen, and blooms in summer, say about August. (E. E.)—*Chrysanthemum coronarium*. (C.)—Received from a lady, name lost, *Mesembryanthemum noctuidorum*, or a species very near it. (W. Taylor).—Ground Ivy, *Nepeta glechoma*. It is used by country people to make a tea, and given for coughs and affections of the urinary organs. (S. T. P.)—*Isorhiza*; *Ernstianthus Cooperi*. (*dwatery*).—*J. Fulmo*, name lost, officialis alba; 3. *Muscari racemosum*; 4. *Alyssum saxatile*. Wait patiently for your seedling *Camellia* appearing above ground; the seeds are very slow in germinating. (Apt. Dublin).—The specimens were not numbered. We do not remember the others.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### RATIONAL POULTRY-KEEPING.—No. 2.

#### THE HEN AND HER BROOD.

It is with rearing chickens, as with many other things, far more profitable and useful to find a substitute for things lacking, than to rest content with bemoaning their absence. It is, therefore, profitable to compensate for limited space by frequently moving the surface of the run allotted to the chickens, and making the irregularities and mounds of which we have spoken now in one place, now in another. These appear trifling details, but success is made up of attention to them. If the chickens are to thrive, the hen must be comfortable; and unless her rip affords room for her to move about, stand upright, even if she stretch her neck, scratch, &c., she will not be at ease. She should be confined for at least six weeks or two months, save in very fine and warm weather, when she may have her liberty at the end of a month. As a rule, none of the poultry tribe are good mothers in all particulars. They will defend their progeny vigorously, they will fly at a dog or any other interloper, they will seek food for them, they will cover them at night, but at earliest daybreak they will start through the wet and cold grass, followed by all the tribe. The chickens are lucky if all return, but some only return to die; they are dreggled and chilled. If, then, the hens are let out while the chickens are yet young, they should not have their liberty till the sun is up and the grass thoroughly dry. The hens should be brought back and put under their rips just before sunset. The rips should stand on the earth and be moved daily. It is good economy to let the hen feed with the chickens. Her warmth during the night has much to do with the growth of the chickens, and that will not be at high temperature unless she is well fed.

This brings us to the food question. Bread and milk, chopped egg, dough made of oat or barley meal mixed stiff, crushed wheat, curd, and cooked meat chopped fine, are all very good food. The curd should be made with new milk, put in a saucepan on the fire and turned with alum. It is very valuable food, and will keep two days, or in favourable weather more. When the milk is turned it should be emptied into a long cloth, which should be folded round it. Two strong persons should take each one end of the cloth and twist in opposite directions. The whey will soon be squeezed out, but the twisting must be persevered in till the curd is hard and dry, and has taken the impression of the linen on the outside. That is the test of its fitness for food. In this state pieces may be broken off, and if thrown down it will scatter. Chickens and young game are very fond of it, and it agrees with them. They will often eat it when they refuse other food. We are great advocates for beer as the beverage for young chickens. It is not as essential at this time of year as earlier, when nights are so much longer and the weather more trying, but we find they much prefer it to water, and they do better upon it.

After all, the principal thing is to give as much variety as possible. Chickens, like children, or even adults, tire of the

food that is always before them. It is not sometimes convenient to do it, but for economy and success, chickens should have no spare food. They should have at each meal just as much as they will eat up clean. This necessitates many meals. If the chickens have a good grass run they do not require so many. They find food. One exception may be allowed. Chickens wake hungry, and day breaks before four. Few of the world are then moving, and for that reason some food may be placed there overnight. It must be put liberally, because there is a penalty for not getting up—the small birds will feed with the chickens, and consume no mean portion of the food. Poultry do not at any age require to be <sup>be</sup>tempted with choice food, and it is no cruelty when they seem inclined to be dainty to withhold one, or it may be two meals. Rich people's fowls more often suffer from plethora than hunger. Rich people's pets are more to be pitied than the celebrated coutermonger's donkey. The poor singing bird—Goldfinch, Bullfinch, or Canary—that would have all Nature required if they were supplied with a little groundsel, chickweed, and in the autumn plainain, maw, rape, or turnip seed, is tempted with sponge cake, sugar, and biscuit. An unnatural state of body ensues, the bird is burnt up with fever, and the effort to moult is a fatal disorder.

The lap-dog, of whatever breed it may be, is pampered till it will not eat chicken without butter, or lamb without gravy. It was sprightly once, but now a fat wheezing object of pity. It lies on its crimson velvet cushion, and only languidly raises its head when called by name. We will give the history of the cure of such an animal. As our lively friends on the opposite side of the Channel would say, the dog belonged to Madame X. It was pampered till it was a nuisance, and worse than useless. At last the mistress took it to the celebrated M. Y—, and after embracing it tenderly suffered her servant to carry it into the shop, and to leave it.

"We will not ask Jean Jacques Rousseau  
If dogs confabulate or no,"

but we know that the aristocratic animal looked around it with contempt, and then with anger. At last it ventured on the ghost of a bark. This effort called another dog from an inner shop. The new comer took stock of the pet, and laughed, if a dog can laugh. It then stood on its hind legs, with its fore paws extended, and its muzzle on the ground between them. Then it took a run round the shop, and came with the force of a catapult against the pet, rolling it as far as the premises permitted. This was too much, and with a piteous howl our "aristo" took refuge among some lumber. He was removed down to a small loft, where he was tied up with a common chain and collar, provided with a moderate portion of straw to serve for a bed, and a willow pattern soup plate full of water. This misery overcame him quite, and he howled loud and long, but it brought none of his usual attendants. A short man armed with a whip asked what that noise was for, and as pet ventured to repeat a little, he made acquaintance with the whip, and was glad to shelter himself in the straw. Two days without food, he was so hungry, and already so altered, that when the man came with something in his hand he really jumped for joy. He was starved for a fortnight, and then properly fed for a week. At the end of that time Madame X. called for him, he was let loose, and at once bounded into the carriage to his mistress's delight. The secret of the cure was given to her, and she was wise enough to follow it.

"Jones," says the owner of some of the finest fowls ever seen, pointing to a number of them that are squatting about, some under a hayrick, others under a granary, and some in the grass, all drowsy—"Jones, these birds do not feed, here lies best part of the food I gave yesterday. What is it? They want change. What have they had lately?" "Ground oats, barley meal, whole corn, and Indian corn." "What else can we give them?" "Well, Sir, I was thinking it is a dry time, and there is very little animal food; I think a little raw meat." And they have it, and then there are complaints they don't lay, and then some die on the nests, and the birds all do badly. To be sure they do, how can it be otherwise? They are over-fed and over-fat. It is said the cure for gout is to live on £1 per week, and earn it, and we are quite sure the secret of health for fowls is to be hungry enough to seek food.

GUILDFORD SUMMER POULTRY SHOW.—The prizes at this are good, and there are in addition eleven pieces of plate

given by private subscriptions. Pigeons and Rabbits are included.

### BROWN RED GAME BANTAMS.

On opening my Journal of the 12th inst., I was glad to see that my old opponent "GALLUS," has now become a supporter of Game Bantams, and I can cordially endorse his remarks, that it is high time a separate class for Brown Reds were formed. I have for years bred them, but have only exhibited them on a few occasions, and although successfully, I have refrained from exhibiting them regularly, owing to there being no special class for them. I am of opinion, that Game Bantams are now bred so numerously, and of such good quality, that they should have as many classes as Hamburgs and others, and I think their acknowledged position demands it. I cannot, however, agree with "GALLUS," in his opinion, that they should be classed with Duckings and Piles. I think that where the standing of the show will not allow a separate class for them, the Brown Reds should be classed with the Black Reds, although I am a breeder of all kinds of Game Bantams and Game. No doubt my views, as well as those of "GALLUS," will be opposed, but I would remind such opponents that I had to write through this Journal twelve or fourteen years ago, to demonstrate the fact that it was high time there were separate classes for Game Bantams. My ideas at that time were scouted as impracticable, but of their correctness we have now ample proof, and I am sanguine that if a separate class for Brown Reds be formed it will prove equally successful.

I am simply adding my testimony in the favour of the ideas of "GALLUS," in the interest of poultry exhibitors and committees generally, as I have just cause to look back on my career as a Black Red Game Bantam breeder and exhibitor with pride and satisfaction. This, I remark, in no egotistical spirit, as a class for Brown Reds will be of no pecuniary advantage to myself.—JOHN CROSLAND, JUN.

### GAME FOWLS.

GAME fowls are, for the most part, tolerably well judged, but occasionally we see prizes given to birds whose exterior is at once both ugly and coarse. No doubt some of excessively large size have rather an attractive and imposing appearance so long as they remain stationary in a pen, but when they have an unlimited run you will often find them both inactive and listless, frequently lying down, their great weight and inordinate length of leg incapacitating them from displaying that active and restless spirit so natural to a bird of great purity. We do not want a Game fowl to have the proportions of a Brahma or a Cocker, but to be possessed of all the neatness and royal beauty characteristic of this bird when not contaminated by injudicious crosses. It is not a very pleasing sight to see the judges in handling Game fowls, have to hug them in their arms, the great weight and unseemly proportions of the birds altogether preventing a more scientific and less ridiculous manner of handling.

Some breeders have an inordinate passion to obtain great size, but I think this quite a mistake, as we often find the future progeny full of imperfections, such as crooked and deformed backs and breasts, with less spirit and slower movements. The young broods are also more difficult to rear, with feebler constitutions and great tendency to cramp and leg weakness.

I once heard a judge say, that the first glance was sufficient for him to decide upon the merits of a pen; but I should doubt this, as we know too well that some birds have a very striking appearance at first sight, but on closer scrutiny their points do not improve; whereas in others it will be found on closer acquaintance that the desired excellence improves under inspection.

I do not think it possible for any judge, however competent, to form an accurate opinion of a Game cock's merits without handling. Good condition, free from natural defects, soundness of feather and constitution, are important points. Sometimes we see prizes go to birds that are suffering from an impaired constitution owing to being too often exhibited; this I consider a great defect, indeed, far more objectionable than a few stray red feathers in the breast of a cock or the wing of a hen, or even a slightly defective comb. In the first place it is cruelty to exhibit birds whose pale and eichy faces, drooping tails (dry and open feathered), and spiritless condition are evident signs of failing health. Secondly, they are not fit to use for breeding purposes, nor are they fit for a less legitimate use; indeed, no cocker would admit birds so ailing to his feeding pens. I have heard, but never saw it, of exhibitors giving their birds a

slight sponge bath a short time previous to the judges making their awards; for the purpose, I should suppose, of causing a temporary renovation of their failing energies, and also to reduce the dry and open appearance of the feathers.

I have often thought that the judgment at all poultry shows ought to be fairly and honestly criticised. Judges are, as I may say, public property, and ought not to shrink from seeing their arbitrations justly aimed at upon. We have a few gentlemen of taste who attend the principal part of our shows, who are fully competent to do this, and whose comments would be honest and free from the slightest prejudice.—YORKSHIRE.

### PACKING EGGS FOR TRAVELLING.

I HAD a sitting of eggs this season from the Rev. J. Ellis, Bracknell, Berks, in number thirteen; each egg was wrapped in paper, single-folded, then packed in moss and hay, in a frail hamper, sent by railway from Bracknell to Miltonthorpe, near Kendal, and they were brought from Miltonthorpe Station to Old Hall, a matter of three miles, in a heavy cart, jolting on a rough road the whole way, but certainly by mistake. When I received them one egg was broken; I placed the others under a hen, and eight strong chickens were hatched; other two eggs had chicks in them, but they had apparently been dead about a week. I quite believe fresh eggs can be sent any distance with tolerable good packing, with like success.—JAS. GLESSALL, *Old Hall, Miltonthorpe.*

### WHITE COCHINS AT THE GUILDFORD POULTRY SHOW.

As we know from the letter of Mr. Pares, in the number of May 5th, there is to be a poultry show at Guildford, in July next, open to all England. This must be a matter of congratulation to us all, and it is to be hoped that all counties will muster well. Most of the varieties have cups. Mr. Pares is getting up a cup for the Game classes, as he told us in his letter. I am canvassing for a cup for White Cochins. Will breeders of this variety come to my aid, and assist me? I shall insert a list of all contributions in the pages of this paper, and I trust many will support me, and send in their subscriptions to me for this cup, which will be "for the best pen of White Cochins in the show."—REGINALD S. S. WOODGATE, *Pembury Vicarage, Tonbridge Wells, Kent.*

### THE POULTRY FANCY IN AMERICA.

It is common, no doubt, with some other of your readers, I have received the number of the *Poultry Bulletin*, just started by the New York State Poultry Society, as the organ of the poultry and other kindred "fancies," and which is to be issued monthly. I have read it with much interest of course, and as it has, besides, yielded me a great deal of pleasure, and some amusement also in noticing how strongly the American national character comes out therein, I have thought a few remarks on it may not be amiss before resuming more serious business.

This new periodical is only one of many signs that the poultry fancy in America has sprung again into vigorous vitality. Each season, for at least three years past, has brought new personal evidence of this fact, and my impression is that ere long, without our noticing of "mania" or any sign of "hen fever," there will be a sustained and serious interest in the subject not inferior to that felt by the readers of "our Journal." For a considerable time scientific breeding has been much neglected in America, and is even now little understood except by a few fanciers, the result being seen in the fact that most of the best stocks are advertised as "imported" from us; but this will very soon mend itself, and there are signs in this very first number of the new journal that the energetic, practical working of the American mind may speedily turn the tables if our breeders do not look about them.

For instance, how often over here have we debated the extent and duration of the cock's infatuation; but what has ever been done to determine it? Our cousins do the thing differently, and this is the way in which Messrs. Fry & Co., well known as breeders and importers, set about with the matter. "We propose," say they, "to place a laying Black Spanish hen with a rose-combed White Dorking cock; then to remove her and pen her by herself apart from any cock, and to place her eggs laid while thus apart, either in the incubator or under hens, until we shall have established the fact that she is laying eggs which are not fertile. We shall then put her with a Black Spanish cock, and marking each egg that she shall then lay we shall hatch them. By this means we can establish how many of the eggs are impregnated, and whether the influence of the cock extends beyond those actually fecundated. We shall be glad to furnish the result of this investigation to the Society."

I shall myself wait the result of this scientific mode of investigation with much interest, and if no one forestall me will duly announce it in your columns, but I only point it out here as a sign that our trans-

atlantic brother fanciers know how to work, and may teach as a wrinkle or two yet.

The *Bulletin* proposes amongst other matters to insert a list of poultry importations from this country. Pre-eminent amongst all these are the Brahmas, and indeed every page of your new American contemporary shows conclusively that the new own pet breed is at present "cock of the walk" in the United States. I think it will remain so, being not only suited to the climate, but likely to be fostered, from the national feeling, as an American fowl. Of one gentleman it is said that he "has fifteen Dark Brahmas of Boyle's strain to arrive," and many others announce their importations through the advertising columns. There are also several American breeds. One—the Leghorn, is beginning to be known here, and is in my opinion a White Spanish in the main, but what the Danvers White, the Bay State, or Back's County—all distinct breeds, may be, I cannot tell. An American friend wrote me last year they had a fowl they called the "Big Breed," and I would like to see it.

In the advertising columns I see an announcement which may be worth mentioning of "granulated carbolic acid powder," which is stated to safely and effectually destroy all insect vermin in the poultry yard, while it is likewise a powerful disinfectant and purifier, and of pleasant odour. It is stated to have been patented in February, 1868. Can any reader inform me whether any similar article is to be had in this country? The information would be a boon to myself and many others.

But the advertisements are a study in themselves; intensely amusing in their direct and simple address to the reader, they may teach as well as in many respects they come to the point at once, no beating about the bush with brother Jonathan, and generally are in the first person singular, which reads strange to English eyes. "Here goes" for a few specimens. One breeder, after his bare name and address simply adds, "Houdans a specialist. I aim to breed birds as good as can be found. I shall be ready to deliver birds next fall from imported stock." Another words his announcement thus—"Dorking cocks: I have two young cocks of my prize stock for sale, ten dollars each," followed by name. In brevity and point nothing could be better. Another, well known as one of the best and most honourable breeders in the States, advertises thus—"Buff Cochins eggs for hatching. I will spare a few chicks, at twelve dollars for thirteen eggs, from six hens (three of which are imported), weighing 10 lbs. each in ordinary flesh, all perfectly marked, and a young cock recently imported without regard to cost, imported the best Buff Cochins cockerel in England at the present day." I would like to know what this bird was, and as the price charged is very high, may remark that the regulation price for high-class eggs seems to be half the above, or six dollars per dozen. Another noted breeder says, "In order to keep up with the times I have secured a breeding stock (cock and four hens each), of Partridge and Buff Cochins, first-prize winners at the last Birmingham Show, England (specimens that are bought except to go out of the country). I hope to be able to benefit the stock of this country by having a few choice specimens to spare next fall." That is not bad in its way either. This announcement, "No fowls or eggs sent C. O. D." meets the eye continually, and looks odd, but the mysterious initials of course mean simply "cash on delivery," and the hint might be taken here with advantage. Another advertiser announces what I have often thought would be very useful with us, and might be well published by yourselves, "a catalogue of poultry breeders and fanciers."

Altogether, to borrow a simile from the present chicken season, it seems to me that our friends across the water, though many of them new to the poultry fancy, are on the whole a decidedly "downy lot," and I trust this brief notice may not only gain many readers for their new journal, but lead to personal intercourse between them and some of your readers of a profitable and pleasant kind. The office of the *Bulletin* is, Post-office Box 216, New York City, and the subscription one dollar per annum.—L. WRIGHT.

## SUBSCRIPTION CUPS FOR THE SOUTHAMPTON SHOW.

In your issue of February 15th, Mr. Maynard, of Holmwood, Ryde, Isle of Wight, asks for contributors to the Light Brahma cups for this year. Without encroaching too much upon your space, I wish to inform those interested in this subject, that if the required sum of ten guineas be subscribed and divided into two five-guinea cups, one for adults, and one for chickens, the Committee will add second and third prizes to both classes. Thus the adults and chickens will be placed upon an equal footing this season. I have not the least doubt, from the support accorded in previous years, that the sum asked for will be easily obtained. I trust should anyone feel disposed to assist, he will not fail to communicate as early as convenient to Mr. Maynard, the amount of the intended subscription. I cannot refrain from noticing the spirited example set by Mr. Seymour Fraser in promoting a similar undertaking for the French varieties, and as it is well known these classes of poultry are making great strides in public favour. There is no hesitation in thinking that Mr. Seymour Fraser's exertions will be crowned with complete success.—PHILIP WARREN, *Hon. Sec.*

## SKY TUMBLERS.

In the pleasing contribution of Mr. J. G. Levison, at page 236 of the Journal of March 24th, I observe that he "never

had a bird with feathers on its legs," as he thus states. Now, Tumbler Pigeons with feathered legs are often met with, and in lofts, too, where their congeners and relatives are clean in the leg, the feathered leg being a sport of nature, but a sport transmissible to offspring, and so multiplying this variety of Tumblers. Mr. Delamer, author of "Pigeons and Rabbits," says, at page 65, that "Tumblers with feathered feet and legs are not at all uncommon," nor are they, though, perhaps, they prevail more in some lofts than in others. The Macclesfield Tumblers, perhaps the purest English birds, being all Almond, Tippler, Bald, and Beard blood, show occasionally feather legs amongst their cotes; and Mr. Noyd, Secretary to the Birmingham Columbian Society, considers the muffed or feathered leg the tendency of all carefully and closely-bred Pigeons, and mentions that he has seen numbers of Owls and Turbits with muffed or feathered legs, kept, too, as a unique and special class of such birds by fanciers who kept them as a peculiarly pure strain, to the exclusion of, or rather in preference to the clear-legged birds of these pretty Pigeons. This fancy of the grouse-muffed leg (not long-feathered) is prevalent in Birmingham, and hence we have the Sky Tumblers of that town called "high flyers," so frequently grouse-muffed in the leg, a variation I like myself in a flight of Tumblers. Moreover, if powers of flight are at all indicated by muffed legs in birds generally, we have the Eagle, Falcon, and Hawk, the Grouse, the Owl, Swallow, and Swift, all strong on the wing. I think, therefore, that Mr. Levison's observations as to feather legs will not carry any inference of impurity of blood in our grouse-muffed Tumbler Pigeons, as, if unnoticed, it might otherwise do.

Mr. Levison also refers to birds that crack the wings like a whip, as of poor breeding, but evidently confounds cracking with flapping, the habit only of beating, skating, or sailing birds, called duifers and shatterers; cracking the wings being quite the opposite feature of flight. If Mr. Levison is a sportsman, and has the knack of bringing his gun to bear on a snipe, just as this bird reaches the summit of its first mount, from gutter, pond, or marsh, he will comprehend what a cracking wing is; and if he miss his bird, too, he may realise the same idea, in the whirling, zigzag flight of his lost game. The crack or whirr of the Sky Tumblers' wings is given as the birds wheel and mount, the result of close, rapid strokes. Snipe-fashion, to be heard even when the birds are at a considerable height, or from an odd bird that loses flight by a tumble or roll, and rapidly soars again to join the pack. On a calm day I have often heard such cracking far over head, just as I have heard the whirr of wild fowl flights on a still night in their feeding grounds and migratory humours. So that I conclude there is no poverty of breeding in Tumblers that crack the wings as explained.

In reference to the Birmingham Roller, again, I may refer to Mr. Drent's "Pigeon Book," second edition, pages 33 and 36, as corroborating my former assumption, that our Birmingham Sky Tumblers are a cross breed betwixt the continental and old English Tumbler Pigeons. Be that as it may, the Birmingham High Flyer or Roller (Sky Tumbler) is in select flights, a splendid flyer and tumbler, in height and duration of flight, and in beautifully executed somersaults, and many of the birds are models of the Tumbler form, too, the grouse-muffed leg and clean leg being common to all alike. Some have odd eyes hazel and pearl, the hazel eye derived from hazel-eyed Bald, or Magpie, in crosses for changes, still all Tumbler blood. The Leicester birds are of Birmingham descent; the Gloucester birds little, if any, different apparently; and Macclesfield birds, old English, as described—all good birds; but the Birmingham, Leicester, and Gloucester birds expert acrobats, which the Macclesfield birds, except in odd birds, are not, being bred for flying only, irrespectively of the tumbling property.

My own intention is, to mingle the Macclesfield and Birmingham blood, a suggestion my brethren may adopt if worth their attention.—READER.

## TWO QUEENS IN ONE HIVE.

To the "DEVONSHIRE BEE-KEEPER" belongs, as stated in page 217, the honour of having first announced the readers of "our Journal" the peaceable occupation by two queens of the same hive, at a period of the year when such a circumstance was not to be looked for. On making the discovery, Mr. Woodbury at once removed the superfluous queen—a procedure I rather regretted at the time, thinking that if the two queens had not been parted an end would have been speedily put to

the joint occupation, either by a royal duel or a general resolution of the bee community. This idea has been shown to be quite unfounded by the unprecedented experience of "APIOLA," as related in the Journal of March 17th.

I dare say it will be thought incredible by many that two queens could have lived together in harmony throughout a whole winter; but I happen to be in possession of evidence which completely establishes this singular fact, and a phenomenon so extraordinary deserves more than a mere passing notice.

Regarding the senior queen, whose wings I cut off nearly two years ago, "APIOLA" in a letter to me, dated 15th October, 1869, wrote as follows:—"The mother of tigers, hybridised from Neighbour's, which took off the first swarm again this season, and again beat everything for honey, is gone at last. On opening them up a fortnight ago I found the tigers tamed—the very quietest in the place, and found a fine young winged queen in her place." Now, on finding this young winged queen, it was quite natural for "APIOLA" to leap to the conclusion that the old wingless queen had perished, and in consequence make no further examination. But in a communication dated March 9th, 1870, he makes the astonishing statement, "You will be interested in the resuscitation of your old friend the mother of tigers, of which I enclose the account" (the same as appeared in the Journal). Though I knew the witness to be a most accurate observer, and a gentleman whose veracity was above suspicion, I thought it nevertheless possible for him to have fallen into error, and that he had mistaken a common bee simulating royalty for a true queen, or else that there might be some division or peculiarity in his hive to account for the phenomenon. I had, however, been invited to inspect the case and judge for myself, and though it involved a ride of ten miles, the forenoon of March 14th saw me without notice given at the apiary of "APIOLA."

Forthwith the wonderful hive was opened—it was a common ten-framed Woodbury—and comb after comb carefully lifted out. The two central ones were well brooded, and on one of these and on the same side the two royal ladies were seen receiving all due attention from their subjects, and both looking remarkably well. Whilst the frame was held in the hand, neither queen oviposited, which was to be accounted for by the day being somewhat chilly; but judging from appearance, both queens were pronounced fertile. The frames were again replaced, both queens being allowed to hold conjoint rule.

On the 21st, being exactly a week afterwards, I repeated my visit, and was favoured with another examination of the hive. This time the queens were found on adjoining combs, but perfect harmony still prevailed. "APIOLA" kindly offered me the old wingless queen to supply the place of one which had perished in my apiary a few days before. I of course accepted her, and carried her off in a common match box, placed in the outer pocket of my great coat. I need not relate the hardships she endured on her journey, but on reaching home I caged her over the central hole of a stock that had become queenless on the 17th, exactly four days before. On the 24th the wingless queen, *alias* "mother of tigers" received her liberty, the weather at the time being intensely cold. On the 28th she was found laying eggs in a comb with a royal cell on it, containing a living inmate about ten days old. On April 1st and yesterday (April 20th), I repeated my examinations, and had the satisfaction of finding several combs brooded, and the wingless matron as active as any other queen.

Now, can anyone throw light on the mystery of two perfect queens having lived amicably together a whole winter, and why the one that was removed was accepted in a strange hive whilst a royal lady was being reared, and why, after acceptance, no attempt was made to destroy the royal nymph fast reaching maturity? To save my wingless two-year-old from danger, I destroyed the maturing queen.

Accounts from "APIOLA" received yesterday, mention that the junior queen retained by him is doing duty excellently as a mother, having brooded three combs.—R. S.

### OUR LETTER BOX.

**POULTRY AND PIGEONS (G. E. F.).**—It has been tried more than once, failed, and we helped them out of their troubles. If you require information relative to all kinds of Pigeons, enquire to our office twenty postage stamps with your address, and order *Dreot's* "Pigeon Book." You would receive it post paid.

**EGG-EATING HENS (B. F.).**—TI are not a mode of curing but having artificial nest eggs, and watching the hens and taking the eggs from the nests as soon as laid. To prevent them having an opportunity for eating their eggs, have nests made as represented and described in our No. 452, page 427.

**LIME WATER FOR EGG-PRESERVING (W. Simons).**—Thirty gallons of water and one peck of freshly slaked lime are good proportions. Water dissolves very little lime.

**EIGHTEEN EGGS ALL BAD (R. S.).**—Either the eggs had been tampered with, or the package much shaken, or the hens were without an efficient male companion. You have no remedy against the vendor; but under similar circumstances we have given half the number of the eggs bought to the unfortunate purchaser.

**DUKE HATCHED UNDER A HEN (Norvic).**—It is not true that a Drake so hatched is useless, or even partially so.

**STARLING AND JACKAW (Nettle).**—The principal food is insects, worms, small caterpillars and saw flies, &c. In small, chopped hard-boiled egg mixed with bread, or bread soaked in water, and bread kneaded with beer, any kind of fruit, particularly cherries, and grain, seeds, and berries. There is no way of teaching either bird to talk, except by repeating a word or a sentence frequently within its hearing.

**PIGEONS' WINGS DAMAGED (A. Z.).**—Perhaps the mischief arose from the tight feathers becoming dirty and the birds not washing, or from their fighting. Runts are idle birds, so we incline to the former cause. There are Pigeons which clap and beat their wings to the injury of the feathers, but Runts are not likely to do that, rather lively young Foul or coveys, which at times clap their wings, reminding us of the Pigeon called the Smelter in the old books.

**WILD MULE GOLDFINCH (E. P.).**—It may be, as alleged, a cross between a Goldfinch and Greenfinch, but it is not probable. No book teaches how to time birds; tuning can only be effected by long confinement and kind treatment in the case of the Chaffinch you mention.

**WOODBURY FRAME HIVE (A. Z.).**—We much prefer the original dimension 14 inches square by 9 inches deep. Using the space in the first place as a nadir is rather a new plan, and we should like to know the result. Of course the idea is that bees will commence comb-building more readily underneath than if the sapper were put at once on the top. The possible drawbacks are, that the bees there begin many times out of the drone combs, and they are also not unlikely to be discoloured by being bred in. In transporting a newly-lived swarm the hive should be tied up in a cloth of open texture but without its floor-board. Bees do not fasten on the floor-board, but rather on the sides and top.

**BEES IN OLD SPRAY HIVE (Tob.).**—We should advise you to leave things as they are. The young queen may not yet be fertilised, and any further interference might provoke the colony to desert *en masse*. Get "Bee-keeping for the Many," which may be had post free from this office for five stamps.

**HIVES IN WHICH DYSENTERY PREVAIL (C. C. E.).**—The hives will be best purified by scraping and washing. Fumigation with brimstone is unnecessary, as dysentery is not infections.

**PACKING BEES FOR TRAVELLING (H. R.).**—Canvases of open texture will absorb any moisture for a few days. It is safer to invert the hives during their transit by rail.

**BEE SLAUGHTER (J. Leonard).**—We cannot account for the wholesale slaughter which you describe as going on. Bees of the same hive seldom quarrel, and a strong stock is not likely to be attacked by robbers at this season. Perhaps after all it may only be a case of the "robber" bees, an abnormal class whose occasional appearance has puzzled spuriars from Huber downwards. It is, however, satisfactory to know that in this case their elimination is not likely to interfere with the prosperity of the colony. Your neighbours are probably the chief of robbers, or divided away from the loss of queens. It is not likely that they would desert their hives before the stores of honey were exhausted.

**BLACK BEES IN LIGURIAN STOCK (A Constant Reader).**—If all the bees which accompanied your letter were really black, the hive, then, is your Ligurian colony most assuredly not pure. If, on the other hand, they are intruders from a black stock, there is nothing remarkable in their being killed by the Italians.

### COVENT GARDEN MARKET.—MAY 18.

THERE is scarcely any alteration to report. The supplies of home-grown produce have considerably increased during the week, and imports are heavy. Peaches, Apricots, and Melons are offered in moderate quantities.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....doz.	8	6 to 6	Mulberries.....	quart	0 6 to 0 8
Apricots.....doz.	2	0 0	Nectarines.....	doz.	0 0 0 0
Cherries.....doz.	6	0 0	Oranges.....	doz.	0 0 0 0
Chestnuts.....bushel	14	0 0	Peaches.....doz.	42	0 50 0
Currants.....sieve	0	0 0	Pears, Kitchen.....doz.	4	0 0
Black Currants.....doz.	0	0 0	Quinces.....doz.	10	0 0
Figs.....doz.	10	23 0	Pine Apples.....lb.	7	0 10 0
Filberts.....lb.	0	0 0	Plums.....sieve	0	0 0
Golbs.....lb.	0	9 0	Raspberries.....doz.	10	0 0
Gooseberries.....quart	0	6 1	Raspberries.....lb.	0	0 0
Grapes, Hothouse.....lb.	8	0 12	Strawberries.....lb.	5	0 12 0
Lemons.....doz.	6	0 0	Walnuts.....doz.	10	0 10 0
Melons.....each	6	15 0			

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....doz.	8	0 to 6	Leeks.....bunch	0	4 to 0 6
Asparagus.....doz.	0	7 0	Lettuce.....doz.	1	0 6 0
Beans, Kidney.....doz.	1	0 2	Mushrooms.....pottle	1	0 2 0
Broad.....bushel	0	0 0	Mustard & Cress.....pennet	0	2 0 0
Peas, Broad.....doz.	2	0 0	Onions.....bunch	0	0 0
Broccoli.....bushel	1	0 6	Pickling.....quart	0	4 0 8
Brussels Sprouts.....sieve	0	0 0	Parsley.....sieve	3	6 0 0
Cabbages.....doz.	1	0 0	Peas.....quart	0	2 0 0
Capsicams.....doz.	0	0 0	Pean.....quart	2	0 5 0
Carrots.....bunch	0	4 0	Potatoes.....bushel	3	0 5 0
Cauliflowers.....doz.	0	8 0	Raspberries.....doz.	10	0 0 0
Celery.....bushel	1	8 0	Radishes.....doz.	1	0 0 0
Coleworts.....doz.	0	6 0	Rhubarb.....bushel	0	4 0 8
Cress.....doz.	0	6 0	Spinach.....bushel	0	4 0 8
Pickling.....doz.	0	0 0	Sea-kale.....bushel	1	0 2 0
Endive.....doz.	0	2 0	Shallots.....lb.	0	6 0 0
Fennel.....doz.	0	8 0	Spices.....doz.	0	1 0 0
Garlic.....lb.	0	8 0	Tomatoes.....doz.	0	0 0 0
Herbs.....bunch	0	5 0	Turnips.....bunch	0	4 0 0
Horseradish.....bushel	3	0 0	Vegetable Marrows.....doz.	0	0 0 0

## WEEKLY CALENDAR.

Day of Month.	Day of Week.	MAY 26—JUNE 1, 1870.	Average Temperatures near London.			Rain in last 43 years.	Sun Risen.			Moon Rises.			Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.		m.	h.	m.	h.	m.	h.			
26	Th	Royal Botanic Society's Show closes.	67.4	42.8	55.1	19	57	43	5	47	43	41	26	3	16
27	F		64.5	44.7	55.6	22	56	8	59	7	8	44	4	27	3
28	S		68.1	44.4	56.2	15	55	3	0	8	29	3	5	3	10
29	Sun	1 SUNDAY AFTER ASCENSION.	67.5	44.1	55.8	15	54	3	1	8	59	3	57	4	148
30	M	Anniversary Meeting of Royal Asiatic Society.	68.4	44.7	56.6	17	53	3	2	8	16	4	2	8	150
31	Tu		69.4	44.8	57.1	16	52	3	3	8	47	4	9	1	151
1	W		68.4	45.3	57.2	15	51	3	4	8	29	5	0	10	152

From observations taken near London during the last forty-three years, the average day temperature of the week is 67.9°; and its night temperature 44.9°. The greatest heat was 91°, on the 23th, 1847; and the lowest cold 35°, on the 23rd and 24th, 1857. The greatest fall of rain was 0.97 inch.

## THE NARCISSI OR DAFFODILS.



AYEST and hardest of those spring flowers which from early in March till late in May decorate our gardens in defiance of the frosty nights, ungenial slieen showers, and nipping blasts which then too generally prevail, and by which the hopes of horticulturists are often more or less blasted, notwithstanding the utmost skill which they can bring to bear in protecting the out-of-door objects of their care—how is it that the Narcissi are not much more extensively cultivated than they now are? To this question the reply of modern "bedding-out" enthusiasts is likely to be, that they must have all their ground unoccupied, and in a state of preparedness for the planting-out, when danger from frost is past, of these summer and autumn-flowering and ornamental-foliated plants, by the arrangement and profusion of which they are disposed to estimate all, or at least nearly all, "skill in flower gardening." Some of these modern proficients may even affect to despise what they designate as "those vulgar Daffodils that can be seen in every cottage garden." Let them do so if they please, and enjoy the fallow-like prospect that the bare earth of their tenantless flower beds presents before their favourites can be trusted from under their glazed protections; but let them not call this desert-like waste a display of taste.

Doubtless the Narcissi have no claim to the possession of those rich reds, blues, or purples which belong to many other races of florists' flowers; but they are at least unsurpassed in the richness of their yellows, the purity of their whites, and the delicate loveliness of their intermediate shades. Many of them are delightfully fragrant, and few other floral tribes equal them in the diversity yet unexceptionable elegance of their forms. To many, indeed, these combined perfections are so attractive that they resolve to "go in" for the collecting and cultivating of Narcissi; but, as in many other well-intended resolutions, the proverb "Out of sight out of mind" generally becomes too true, and when both flowers and foliage have faded they are forgotten, and give place to new objects of attraction. This may be partly induced by a somewhat prevalent notion that the bulbs can only be successfully transplanted when in an inert and fully-matured state, but with due care this may be done when they are flowering; and when once established, the best treatment is to let them alone, for if the roots are allowed to remain undisturbed, and if the leaves have full scope during the period of their growth, permanency of duration in the plants may be depended upon, as is shown by the annual re-appearance of plants about ancient and ruined mansions, where in past ages they had place among the other floral surroundings.

There is abundant evidence that the genus *Narcissus* held a much more prominent position among florists' flowers two or three centuries ago than in more recent times; and John Parkinson, "Apothecary of London, and the King's Herbarist," who published his "Garden of Pleasant Flowers" in 1629, seems to have been the first

of our British authors "to reduce the Daffodils into such a methodical order that every one may know to what class or form any one doth appertain." His two grand divisions were *NARCISSUS*, or true Daffodils, and *PSEUDO-NARCISSUS*, or bastard Daffodils. In the former he included all in which the crown, middle cup, or chalice was shorter, and in the latter, all those in which it was longer, or about as long, as the segments or divisions of the perianth, those "outer leaves which do encompass it." The following is Parkinson's arrangement, after rejecting the "Sea Daffodils," or *Pancratiums*, and some others which are now referred to separate genera; and the figures appended represent the numbers of species and varieties belonging to the modern genus *Narcissus*, which are described under each subdivision in his second edition, 1656:—

- I. *NARCISSUS*, OR TRUE DAFFODILS, 62.
  1. *Latifolius*. Broad-leaved Daffodils, 40.
    - a. monanthos, generally with one but sometimes two flowers on a stalk, 18.
    - b. polyanthos, with many flowers on a stalk, 16.
    - c. flore pleno, double-flowered, 6.
  2. *Angustifolius*. Narrow-leaved Daffodils, 7.
    - a. monanthos, with one flower on a stalk, 4.
    - b. polyanthos, with more than one flower on a stalk, 2.
    - c. flore pleno, double-flowered, 1.
  3. *Juncifolius*. Juncifolia or Rush-like-leaved Daffodils, 15.
- II. *PSEUDO-NARCISSUS*, OR BASTARD DAFFODILS (all of which have only one flower on the stalk), 21.
  1. *Latifolius*. Broad-leaved Bastard Daffodils, 13.
    - a. simpliciflore, with single flowers, 8.
    - b. flore pleno, with double flowers, 5.
  2. *Angustifolius*. Narrow-leaved Bastard Daffodils, 4.
    - a. simpliciflore, with single flowers, 3.
    - b. flore pleno, with double flowers, 1.
  3. *Juncifolius*. Juncifolia or Rush-like-leaved Daffodils, 4 (all with single flowers).

In the commencement of the present century Mr. A. H. Haworth, of Queen's Elms, Chelsea, published several papers on the Narcissi, which, in 1819, were embodied in his "Narcissorum Revision." Had he contented himself with merely dividing the genus into sections, his arrangement might have been adopted by some, but having split it up into no less than eight genera, succeeding authors have generally discarded it. These were—

I. *ALAN*. Represented by 15 species, among which were included the pretty little *Narcissus minor*; the native Lent Lily, *N. pseudo-Narcissus*; and the large yellow Daffodils, "Daffodillies," or "Daffodowillies" of rural cottage garden.

II. *COBULARIA*. Containing 5 species of diminutive growth, of which the Hoop-Petticoat *Narcissus*, *N. Bulbocodium*, is the best known.

III. *QUERETIA*. Having 8 species, of which the well-known single, and the double Orange Pheasant, and "Batter and Eggs," varieties of *N. incomparabilis* are typical.

IV. *SCUTISANTIES*. Consisting of only 1 species, *N. orientalis*, which has from six to ten showy white flowers on a single stalk, the cup in each of which is deeply gashed or lacinated.

V. *GANYMEDES*. With 6 species all of elegant slender growth, having from two to seven gracefully drooping flowers on each stalk, exemplified by *N. nutans*, *N. ceruisea*, &c.

VI. *PHYLOGENE*. Five species of slender habit, with from 3 to 5 yellow flowers on each stalk, some of which, as the *N. trioloba*, are occasionally catalogued as *Juncifolia*.

VII. *HERMIONE*. A seemingly ill-assorted race, containing 21 species, and embracing most of the true *Juncifolia*, as well as the

most important *Polyanthus Narcissi*; and that in defiance of the characteristic Rush-like leaves of the former, which long since acquired for them the names of *Jonquilla*, *Jonquils*, and *Jauncs*, or Rush-like-leaved *Daffodils*.

VIII. *NARCISSUS*. Which the author restricted to 5 species, including the well-known fragrant white *N. poeticus*, the curious ray-like flowered *N. radiiflorus*, and the two-flowered *N. biflorus*, or "Primrose Peerless," a name applied to it in England from very early times.

Besides sixty-seven species thus arranged and described by Haworth, he had twenty-six varieties, or ninety-three in all; to which number was added fully a third by the year 1831, when his monograph of the *Narcissi* was published as a supplement to Sweet's "Flower Garden." But Mr. J. G. Baker, F.L.S., whose review of the genus *Narcissus* appeared in the first two numbers of the "Journal of Botany" for the present year, reduced the whole to twenty-one species and thirty-five varieties, rejecting from the latter all the double-flowered sorts and such others as were deemed devoid of what is arbitrarily termed botanical distinctness. Mr. Baker very properly includes the whole under the generic name of *Narcissus*; and it is somewhat remarkable that Parkinson and he should come so near to one another in grouping or classifying the whole; Mr. Baker's arrangement being—

GROUP 1. *Magnicoerulea*—in which the crown or cup is as long as, or rather longer than the divisions of the perianth.

GROUP 2. *Mediocrerulea*.—Crown half as long as the divisions of the perianth; in one or two exceptional cases three-quarters as long.

GROUP 3. *Parvicoerulea*.—Crown less than half as long as the divisions of the perianth.

Haworth, no doubt, treated many as species that had no claim to rank above mere varieties; and most cultivators will be inclined to look upon Mr. Baker's treatment of the genus as almost equally objectionable in the opposite direction. And even if he should be nearer the truth, botanically speaking, yet his rejection of minor or subvarieties must render his review of comparatively little service as a guide to the naming and arranging of florists' collections. Parkinson, as was customary in his day, discarded all distinctions between species and varieties, and of the eighty-three kinds described by him, he figured in the aforementioned work no fewer than forty-eight. He farther appears to have been not only an extensive importer and grower of the tribe himself, but was also a raiser of new sorts, and under the name of "Parkinson's Pseudo-Narcissus or Bastard Daffodil," he described a double seedling, which first flowered with him in 1618, "the outer leaves (perianth) whereof being a greenish colour at the first, and afterwards more yellow, on a little turn themselves back again to the stalk." This greenish Daffodil seems to have been accounted a great acquisition by its raiser as well as by the florists of his time, and his description of it is very applicable to a variety which was found thirty or forty years since growing along with the *N. biflorus* on the site of the old garden upon the famous Bass Rock in the Frith of Forth, and then erroneously named *N. Pseudo-Narcissus* by northern botanists. This, the last stronghold which was held for King James in Scotland, was surrendered in 1694, when an order was given to demolish all its fortifications and buildings." Can Charles Maitland, its doughty defender, and custodian of "The Bass Martyrs," have relieved his more irksome and stern duties by tending the popular florists' flowers of that period in his highland garden, where, according to Fraser of Brea, one of his prisoners, "herbs grew, with some Cherry trees?"

The *Narcissi* are not only the most important tribe of spring flowers for garden decoration, but they surpass all others in their adaptation for beautifying woodlands and other "unkept" pleasure grounds, before deciduous trees and shrubs become clothed with their young foliage; and when once introduced they will there endure for ages without further care. Modern flower lovers would, therefore, do well to imitate their ancestors by cultivating them far more extensively, as well as in the rearing of improved new varieties, in which they have the advantage of the comparatively modern knowledge of hybridation; by which crosses may be effected between widely different species; and as three at least of these flower in autumn, might not an amalgamation with them and some of the spring kinds result in a race of summer-flowering sorts by which the blooming of *Narcissi* would be continued from early spring to ending autumn?

In forming collections of such a widely-diversified race of flowers as the *Narcissi*, growers find that some mode of classification is essentially necessary. Either of the three preceding

systems may be adopted or altered as taste may direct; while some may prefer the less scientific modes of arranging their plants according to height, colour, time of flowering, &c. And parties who intend setting about *Narcissus* cultivation should lose no time in securing catalogues from the best growers both at home and abroad, so that they may be ready to furnish themselves with the kinds wanted as soon as the autumn supplies can be procured; for not only do the first selectors secure the best roots, but most of the kinds suffer more than *Hyanthis*, *Tulips*, *Gladioli*, &c., when kept long out of the earth.—WILLIAM GORRIE.

## VARIEGATED BEDDING PELARGONIUMS.

SOME of your readers may not think my notes on bedding *Pelargoniums* complete without some mention of the variegated section, although I have not much to add.

First of all, I think Mrs. Pollock still holds her own among the *Tricolors*, the great secret of success being, in my opinion, to establish the plants well before bedding out, and to give them liberal treatment with manure. This holds good for all the *Tricolors*. I quite agree with your correspondent "STIRRI SOIL," in thinking Lady "Nullum one of the very best, but still, owing to its very dark zone, it produces a different effect to Mrs. Pollock; it is a strong and vigorous grower, and especially valuable in beds that are seen near the eye, or for a border near a house, where it can be seen from the windows.

Sophia Dumaresque is quite as good in its way as either of the above, and of a more spreading habit for bedding purposes. Sunset has proved utterly useless with me out of doors, and is only good for pot culture.

Amongst the *Tricolor* section, which I have only in pots, but which I have seen tried elsewhere, are Lucy Grieve, Sophia Curack, Louisa Smith, and Spanish Beauty. Of these I think Louisa Smith likely to prove the best bedder, and in this view I am confirmed by "D. Deal."

Of the Silver *Tricolors* I have not yet found one that is to be depended on for bedding purposes, though they are all very pretty for pot culture; and of these the best I have tried hitherto are Italia Unita, Beauty of Guestwick, Caroline Longfield, and Picturata. The last was beautiful in pots with me all through the winter. They do not, as a class, seem to stand hot summer sun, and wherever they are bedded out of doors they will do better if they can be shaded from midday sun. All the Silver *Tricolors*, as a rule, do better in autumn, when the days are shorter and the nights more moist and cool.

Among the variegated *Pelargoniums* with white edges, Flower of Spring has done better than any other with me. Bijou is too upright in habit, and does not branch enough. Alma is still a very good variety. Jane is a strong grower with a very spreading habit, but is too loose in the foliage. Mrs. Lennox has a good pure white edge, but is not of sufficiently strong growth; it is, however, exceedingly good for pot culture.

Of the Gold-edged section I still like the old Golden Chain as much as any, especially for the edges of beds, though for centres Cloth of Gold and Crystal Palace Gem are better, and a sport from Crystal Palace Gem with a pure yellow leaf without any variegation is very effective, but not so good as Pillar of Gold (Turner's), which is by far the most effective gold-leaved *Pelargonium* I have yet tried. One valuable property is the leaves turn of a lighter colour as they grow older or die, and not green as with most of the Gold-edged section.

I now come to the Bicolor or Gold and Bronze section, which cannot be called variegated any more than an ordinary Zonal like Madame Vaucher or Indian Yellow, although I have seen them exhibited at some provincial shows among the variegated class.

Every year sees a higher development of beauty in these. The best which I have is Crown Prince (Downie, Laird, and Laing); next, I think, come Kentish Hero, E. G. Henderson, Duke of Edinburgh, Mrs. J. Todd, and Egyptian Queen. Ebor, a variety raised and sent out by Messrs. Backhouse, of York, is also very promising. Beauty of Calderdale has too great a tendency to turn green, and the same remark applies to Beauty of Oulton, though sometimes making a very effective bed; but I give the preference to those which have light gold leaves and red zones instead of the darker zones, as Perilla, Imperatrice Eugénie, Her Majesty, and others which are generally inclined to turn greener than the more golden section. There are several of the Bicolors, which I have only hitherto grown in pots, from not having a sufficient number for bedding purposes;

but I think a tolerably correct estimate can generally be made of the Gold and Bronze sections when grown in pots in light houses or in the open air, though of course one is occasionally liable to error.

Having, since I wrote the above, been to the Kensington Polarionium show, I think the most promising Tricolors shown there were Ealing Royal, by Mr. Stevens, of Ealing; Princess of Wales and Mrs. Dunnett, by Messrs. Carter, High Holborn; and Macbeth, by Bell & Thorpe; also one of very high promise by Messrs. Veitch. Mr. W. Paul's Waltham Elm and Avalanche will be effective as bedders if the flowers keep their colour and do not turn pink, as they are free bloomers, but the variegation is not particularly good.

Mr. C. Turner, of Slough, showed a very pretty little basket of Zonals, conspicuous among which were Avocat Gambetta, and M. Rival, the former a very promising flower in the way of Eclat. The Zonals—large specimens in large pots, were, as a rule, a failure, if we may except six, shown by Messrs. Downie, Laird, & Living. The double Zonals were utterly bad: flowers rough, leaves large; and a seedling shown by Messrs. Bell & Thorpe ought never to have been exhibited; it is a large plant, flower trusses few and far between, and not larger than a small and badly-grown red Glove Carnation.—C. P. FRANK.

### FORCING STRAWBERRIES.

In replying to a correspondent at page 364, you ask for some one to inform you whether Dr. Hogg and Mr. Rideliffe Strawberries are suitable for early forcing. Of the latter I have had no experience, but the former I have proved to be one of the best sorts for forcing for use at the beginning of April and onwards. It is quite as prolific even earlier than that time, but, being of the British Queen class, a March sun is not powerful enough to bring out its proper flavour, neither does it colour so well. For colour and flavour, there is none to beat Keens' Seedling for the earliest crop. After the above time Dr. Hogg Strawberry will be found a desirable variety, and whether for late pot culture or out-door growing, I like it much better than the British Queen.

While upon the subject of Strawberry forcing, I may remark that in my experience I find that the cockscomb-shaped fruiting sorts, such as Dr. Hogg, President, Sir Harry, &c., require more care and skill to get a crop from them than the globular-fruited sorts. I find it better not to put them into their fruiting pots so soon as other sorts by three weeks or a month, because if the plants are so much pot-bound at fruiting time, the crop, beyond producing one large fruit, is pretty sure to be deformed and small. Allowing them to want water is sure to produce ill-shaped fruit. I generally force large quantities of Strawberries, and I have the plants watered twice a day.—THOMAS RECORD, Lifford.

### SEA-SIDE PLANTING.

I AM gardener upon a large estate within the influence of sea winds, and send you the result of my observations upon the trees and shrubs most suitable for planting in places near the sea. First of all, as the very worst, and upon this there can be no difference of opinion, is the Larch.

On the other hand, as the best, I will place the Austrian Pine and Pinus Pinaster, but the objection to the latter is that in all situations where I have seen it, it is apt to grow with a crooked stem.

There is a tree indigenous to this country, which for planting as hedges, and as single trees, I should even prefer to the Austrian Pine—that is, the Ulmus suberosus, Cork-barked Elm. Between this place and the town of Towy, as hedges, exposed to almost every wind that blows, there are specimens of these trees as upright as if they were in the centre of England.

There is another Elm, the Cornish, Ulmus cornubiensis, of which there are some fine specimens in the noble park of Lord Penrhyn, at Penrhyn Castle, near Bangor, which appear equally suited for sea-side planting.

The Quercus Ilex, Evergreen Oak, is also a very good tree for the purpose. Two, supposed to be the finest trees of their sort in Britain, were blown down here the night of the wreck of the "Royal Charter," off the coast of Anglesea, in 1859. The timber of old specimens of this tree is most beautiful, and at this place it has been made up into bookcases and other articles of household furniture.

The Sycamore is a good tree for sea-side planting, but the

objection to it is, that on the exposed side its leaves before the commencement of autumn become discoloured.

The Lombardy and Black Italian Poplars, particularly the former, are also good trees for this purpose, and I certainly should not exclude the Scotch Fir, even where there is but little shelter.

With regard to shrubs, and small trees, I would place amongst the worst the Rhododendron, among the best the Hydrangea, which I have never seen flourishing well far from the sea. Privet is also very good; Laburnum is said to be so, but we have none here in an exposed situation. Tamarisk is, of course, first-rate, but it does best in a sandy soil. Here it does not succeed; but unsheltered, facing the west, at the beautiful little villa of Mrs. Pugh, near Aberdovey, in this neighbourhood, there are some lovely specimens.

These are all which now occur to me, but probably many more will hereafter. After all, I do not hesitate to say that soil has almost as much to do with the success of plants as shelter, and I believe that in a suitable soil, with a few rows outside of trees which will bear exposure, handsome plantations and shrubberies may be grown anywhere.—N. E. OWEN, Gardener, Peniarth, Towy, Merioneth.

P.S.—I should mention that the largest Evergreen Oak blown down here, was 6 feet in diameter at the base, and 11 feet in circumference at 5 feet from the ground. There is a magnificent tree of the same sort now growing, at Ynys, the fine old seat of the Corbet family, three miles from this place.

### FLOWERS AND FLOWER SHOWS.

SOME of your correspondents have, to say the least, misunderstood my views on this subject. Mr. Turner writes under the startling heading, "Thoughts upon Reading Mr. W. Paul's Denunciation of Flower Shows." Now, as I always have been, still am, and intend to be, a supporter of flower shows, I think I am entitled to ask Mr. Turner either to show where I have denounced them, or to withdraw so damaging a charge. To denounce certain practices attendant on flower shows is not denouncing flower shows.

Mr. Cutbush, who endorses Mr. Turner's attack, says—"Nor does my short experience determine me in saying nurseries are less visited than formerly." This is, to say the least of it, disingenuous. I have never said they are, but exactly the reverse. My words are:—"Purchasers are now forsaking the flower shows and returning to the nurseries." (See JOURNAL OF HORTICULTURE, page 221.) Mr. Perry considers my article "an insult to all honest exhibitors," and calls for "an indignant reply from all." A reply to what? I have never said, nor do I hold, that "all" exhibitors dress their flowers, but that some do is a matter beyond controversy. Here is the case. I have expressed my disapproval of the practice of "dressing" flowers because I judge it dishonest, and, therefore, inimical to the true interests of horticulture. This Mr. Perry calls "an insult to all honest exhibitors," and calls for "an indignant reply from all." Does Mr. Perry mean to say that all exhibitors dress their flowers, or that the practice is honest? If not, it is the indignation of the dishonest only that he should have invoked. Honest exhibitors (those who do not dress their flowers), I have no point of controversy with: they are clearly on my side. If anyone doubt this let him read my articles (see JOURNAL OF HORTICULTURE, pages 142, 220, and 275).

Messrs. Turner, Cutbush, and Perry take a lower estimate of the intellect of the horticultural community than I do, if they think they can blind it by raising a few clouds of dust. It is strange how men sometimes suffer their passions, prejudices, or supposed interests to mislead their judgment. But "*Magna est veritas et prevalebit.*"—WM. PAUL, Paul's Nurseries, Waltham Cross.

CAMELLIA Leopold Premier.—"One of the most beautiful and useful of modern varieties. The flowers are above medium size, beautifully imbricated, and highly coloured, while the foliage is good, the habit vigorous, and the plant remarkably floriferous—qualities which stamp it as a Camellia of the very first rank. It was raised by M. De Coster about 1856, and passed over to M. Jean Verschaffelt, by whom it was exhibited before the Société Royale d'Agriculture et de Botanique de Gand, in 1861, when it was awarded the medal offered for the most beautiful seedling Camellia. We are indebted to Mr. Ball, of Chelsea, for the opportunity of figuring it.

"The habit of the plant is pyramidal, and well branched; the







productions, but that in my judgment the palm must rest with the French makers; and we ought to be obliged to the Crystal Palace Company for giving us an opportunity of testing the matter.

The prizes for English bouquets went to Mrs. Green, 28, Crawford Street, Bryanston Square; Mr. H. Boyce, Stockwell; and Messrs. A. Henderson & Co. Among amateurs, the successful exhibitors were Messrs. Dedman, Neighbour, and Buxton.—D. Doal

### ROYAL BOTANIC SOCIETY'S SHOW.

The first summer show for the season of this Society opened yesterday under most favourable circumstances as regards weather, and will be closed this evening. It is somewhat unfortunate that it has come so soon after the Crystal Palace show, for many of the subjects exhibited had first made their appearance there, and are not improved by the service they have done. It may be only an idea, but the idea impressed itself on many who had seen the plants at Sydenham, that they have lost much of their freshness. Be this as it may, the show is nevertheless very pretty, and the Regent's Park shows, even under the most disadvantageous circumstances, are seldom otherwise than pretty, whatever may be the materials of which they are composed, thanks to Mr. Marnock's excellent disposition of the place of exhibition.

There are but few collections of Stove and Greenhouse plants in flower, and these, for the most part, had previously appeared at Sydenham. Messrs. Wright, Carr, and J. Wheeler took the prizes among amateurs, and Mr. Williams and Messrs. Jackson, of Kingston, among nurserymen, for groups of three plants. Groups arranged for effect between Mr. A. Henderson & Co. and Rollison, and also came from Messrs. Lane, A. Henderson & Co., and Rollison. Messrs. Lane's take prizes in the order in which they are named. Messrs. Lee's collection contains *Theophrasta imperialis*, tree Ferns, *Croton angustifolium*, several graceful Palms, *Azaleas*, *Orchids*, *Heaths*, *Stephanotis*, *Clerodendron Balfourianum*, and other plants in flower. These are tastefully placed, and very effective, three hanging baskets adding much to the graceful appearance of the arrangement.

Groups of bedding plants arranged for effect come from Messrs. E. G. Henderson & Son and Mr. Ware, the former having rays of a large bed with *Scabellina*, with *Golden Pyrethrum* as a second row, and variously filled with *Coleridiums* of different kinds, *Festiva Herbata*, and *I. Lindleyi*. Mr. Ware's arrangement is also edged with *Golden Pyrethrum* interspersed with *Echeveria metallica*; next comes a row of *Echeveria secunda glauca*, then one of *Funkias*, followed by *Centauries*, and the whole of the centre filled-in with ornamental-leaved plants.

For eight Cape Heaths the prizes go to Mr. J. Ward, Messrs. Jackson, and Mr. J. Wheeler; for twelve, to Messrs. Jackson, Mr. J. Ward, and Mr. J. Wright, Regent's Park.

Of *Azaleas* there is an extensive display. In the nurserymen's class, the prizes are taken by Mr. Williams, Mr. Turner, and Mr. Tanton, of Epsom; and in the amateurs' by Messrs. Carson, G. Wheeler, and Wilkie; whilst for plants in pots not larger than 13 inches in diameter, the successful competitors are Mr. Little, gardener, Roydon Lodge, Croydon; Messrs. Lane; and Mr. G. Wheeler.

*Pelargoniums* form a good display, but it is useless giving a long list of the varieties exhibited, as many of them have been noticed in previous reports. Mr. Ward, Mr. Windsor, Mr. Wright, Mr. Weir, Mr. Turner, and Messrs. Dobson take the principal prizes. The best single specimen is Lucy, from Mr. Windsor, a magnificent plant, at least 4 feet across. *Rose Celestial*, from Mr. Ward and Messrs. Dobson & Son, is also large and in excellent bloom.

*Roses*, as at Sydenham, are very fine, both these in large and small pots. For ten, in 12-inch pots, equal first prizes are taken by Mr. Turner and Messrs. Paul & Son; while for twenty, in 8-inch pots, Mr. Turner has a first prize; and a similar award is made to Messrs. Paul & Son for six standards and six dwarfs. Of the former Monsieur Woodfield, Francois Troyer, Mlle. Marie Rady, and Alfred Colomb are the most noticeable. In the amateurs' class for six, Messrs. Terry, Godfrey, and James are the prizetakers.

*Orchids* are good on the whole, and some of them splendid. The best eight come from Mr. Burnett, gardener, Peterborough House, Fulham, and comprise a fine *Foxburgh Ardis*, *Saccolabium pulchellum*, *Cypripedium candidum* with four blooms, *Saccolabium Reddii*, and *C. barbatum superbum*. Mr. Ward, who is second, has a fine *Dendrobium thyrsifolium*, *Anguloa Clowesii*, and other species shown at the Crystal Palace. Mr. Eckford, gardener to the Earl of Radnor, Coleshill, has *Saccolabium premorsum* with a dozen spikes, and *Saccolabium retusum* with two racemes 18 inches long, and other two shorter. Mr. Hill, gardener to K. Hanbury, Esq., The Poles, Ware, has a splendid *Cattleya Skinneri* and *Clypea Linnamghii*, also fine, and takes the next prize. In the nurserymen's class, the prizes were awarded to Messrs. Williams, Parker, and Bull; to the former for plants noted in a previous column, while Mr. Bull has a good *Cypripedium candidum*, *Vanda*, *Lelia purpurata*, and *Odontoglossum luteo-purpureum*, all in good bloom. The best single specimen *Orchid* is *Phalaenopsis grandifolia*, with two spikes and twenty blossoms, from Mr. Fairhair, gardener to the Duke of Northumberland, Lion House; the next best *Odontidium sarcodeum*, from Mr. Bull; and Mr. Wright is third for a *Vanda sonevia*, with two fine spikes, Mr. Douglas being fourth with *Cattleya Mossii*.

The best collection of twenty-four herbaceous plants is from Mr. R. Parker, of Tooting, and consists of several *Pyrethrum* in fine

bloom, *Primula cortusoides amona*, *Paeonies*, the white *Arabis contracta*, and other plants.

Mr. Hill shows excellent specimens of exotic Ferns, especially the Bird's Nest and Stag horn. To him a first prize was awarded, the second and third going to Mr. Carr and Mr. G. Wheeler. The best pair of tree Ferns come from Mr. Carr and Mr. G. Wheeler. The best pair of tree Ferns, who have noble specimens of *Latania borbonica* and *Cocos nucifera*. Mr. Wright has a fine *Phaenochloa schelleraum*.

Among miscellaneous subjects are fine boxes of cut Roses from Messrs. Paul & Son and Mr. Cranston, the latter having a beautiful box of Marechal Niel. Messrs. Lane and numerous *Rhododendrons* and *Azaleas*; Mr. Wheeler a collection of flowering and fine-foliated plants; Mr. Wilkie a number of *Caladineas*; Mr. Wood, gardener to W. B. Kellogg, Esq., Stamford Hill, a collection of *Agaves*, including a fine specimen of *A. filifera*, 2 feet in diameter.

Of new and rare plants, collections are shown by Messrs. Veitch, Bull, Williams, Rollison, A. Henderson & Co., and Sandilich & Co. The most notable are *Cochlostoma Jacobinum* and *Tillandsia Lindeniana* from Mr. Williams. Numerous certificates were given, but the awards were not completed when we were going to press. There are also several fine seedling florists' flowers, especially *Pelargoniums*, from Mr. Turner, Messrs. Downie, Laird, & Laing, and others.

### ENTOMOLOGICAL SOCIETY'S MEETING.

THE May meeting of this Society was held on the 2nd inst. at Burlington House, the President, A. R. Wallace, Esq., in the chair. A beautiful collection of *Butterflies* from one of the valleys on the eastern side near the northern extremity of the Andes of Ecuador, was sent for exhibition by Mr. Hewitson. It contained about twenty entirely new, and many very rare species, although it had been found near the localities from which Mr. Buckley had so recently brought a very fine collection, exhibited at a former meeting. The Secretary exhibited the proof sheets of the first part of Mr. Kirby's general catalogue of *Butterflies*.

Mr. F. Smith exhibited a collection of sealed Hymenoptera, with a few Coleoptera and Diptera, sent from Nagasaki, in Japan, by Mr. Lewes. Of forty-four species of Hymenoptera, as many as twenty were undescribed. The collection contained many specimens of *Polistes belgicus*, a wasp common in continental Europe, and a honey Bee, which Mr. Smith was unable to distinguish from our common *Apis mellifica*. Mr. MacLachlan exhibited some new species of exotic Dragon Flies, including *Caltopteryx rutilans*, one of the most brilliant insects known.

A note was read from Mr. Holdsworth, of Shanghai, on a silk cocoon reared from an Oak-feeding caterpillar, at Sitchuen, which he believed to be a fine form of *Saturnia Pernyi*. It also confirmed the statement made at a former meeting, that certain Moths described by Mr. Walker as belonging to three different genera, had been reared by him from one batch of eggs laid by a species of *Oedonectes*, the specimens only differing in sex, colour, and markings, specimens fed on the Oak having proved variable in the latter respects.

Mr. G. R. Crotch exhibited *Trachypoeus laticollis*, a small species of weevil, new to this country. Mr. Smith stated that it had been announced that M. Forster, of Aix-la-Chapelle was about to publish a memoir on *Prospis*, a genus of Bees, with descriptions of as many as seventy-three European species, although Mr. Smith considered that the real number did not amount to more than five!

Mr. Pascoe read a memoir containing descriptions of forty new species arranged under twenty new genera of Australian Coccinellidae. Memoirs were also read, by Mr. W. C. Hewitson "on the new species of equatorial *Butterflies*," contained in the collection above mentioned; by Mr. MacLachlan "on new genera and species of *Caltopterygidae* and *Gomphidae*;" and by Mr. H. W. Bates "on some new genera and species of South American *Coccinellidae*."

### SPALDING FLOWER, FRUIT, AND POULTRY SOCIETY.

THE schedule of our Cottagers' Show is substantially the same as that recommended by Mr. Robson in the Journal of April 23th. There is, however, one new feature which I think calculated still further to increase its usefulness, and might possibly do much good if you would suggest it to others—viz., that every competitor will be presented with a copy of the Royal Horticultural Society's prize essay on Cottage and Window Gardening.

Our show has been most beneficial to the cottagers in the neighbourhood, and has wonderfully increased the attention paid to cottage and window gardening. We hold the exhibition as a part of our horticultural show, and find it to be as interesting and attractive as any department.—G. F. BARNELL.

### EARLY PEACHES.

I PLACED my trees of Early Louise, Early Rivers, and other early Peaches (they are all in pots), in my forcing house the

second week in December, giving very gentle heat for two or three weeks. On the 20th of April I gathered fine high-coloured fruit of the former fully ripe, and on the 26th of the same month equally fine fruit of the Early Rivers Peach. The Early York and Early Grosse Mignonne, in the same house, the best of our old early sorts, are not yet ripe, and will not be for a week or more.

The saving of fuel that may be effected by growing these very early Peaches is a matter of importance to the forcing gardener, and must be my apology for recording the above. As far as I can judge, the Early Louise will ripen from five to six weeks before the Royal George Peach, which has been hitherto a favourite forcing variety.—SENER.

### THE EFFECTS OF FROST ON OUR FRUITS AND THEIR BLOSSOMS.

It may be as yet premature to speculate on the full effects of the damage done amongst our fruits by the severe frosts of the early part of the month. Up to the 1st of May all was safe and well, and we would have staked long odds on the chances of an abundant fruit season. After a long continuance of cold ungenial weather, our fruit trees—Pears, Plums, and Cherries, burst forth into their full beauty of bloom towards the end of April—several weeks later than usual. Blossom was everywhere abundant, large, and fine, and our prospects high. The lateness of the blooming gave us security and hope, and the leaves were rapidly expanding, affording shelter and protection to the young fruits; and everywhere it seemed to say, Oh, what a glorious season of fruit! On the 2nd of May, however, a change occurred, our Pears, Plums, and Cherries were mostly set, and looking well, and our Apples just expanding their first blossoms, and in their most lovely stage. Currants were in full flower, and Gooseberries as large as Peas. The first blooms of Strawberries were just opening, and Peaches, Nectarines, and Apricots on our walls as large as Beans. On the 3rd the thermometer fell to 24°. Our fruits, however, being dry, were not injured. On the morning of the 4th it had fallen still lower, and stood at 20°, being 12° of frost, which proved fatal to a great portion of the young fruits on our dwarf-trained trees. For several mornings in succession there were from 6° to 8°, and again on the 8th, 12° as a climax, now followed by genial, mild May showers, making all vegetation glad, and showing in some instances very markedly the losses we have sustained. On the tall standard trees and on walls the crop is safe and extremely abundant, but on nearly all our dwarf trees—cordon, bush, and pyramid Apples, Pears, Plums, Cherries, Gooseberries, and Currants, the loss of fruit is great and greatly to be regretted. After all our care in pinching and training these trees and making them such truly ornamental objects in the garden, it is sad to find they are the greatest sufferers from these late spring frosts. Now our trees will grow, and they may grow. We have lost half the interest, because that for which we grew them is not there—the fruit is killed, and for almost another year we must wait ere we experience the same pleasant hope or the same sad disappointment.

The effects of frost are in many instances very plainly presented to us, when, as with the Potatoes and the young shoots of the Walnut, the leaves, &c., are blackened and destroyed, or, as with the Gooseberries, when the berries are seen to be blistered and discoloured, and within a day or so fall from the tree. And, again, its effects upon stone fruit—Apricots, Peaches, Cherries, and Plums, are also plainly shown and pretty generally understood. The injury may be committed first on the style or pistil, yet it soon descends to the ovary, and the whole fruit is rapidly blackened, and seen to be dead. One second's observation will show this—just merely opening the scales of the calyx, splitting the flower, or what covers the young fruit, when it is at once seen.

In the case of the Apple and Pear the injury which is effected through frost is not so very apparent, and very confused ideas seem to be held by many regarding it. I have found, indeed, that many gardeners, otherwise well informed, have no idea whatever as to its immediate effect, or whether their blossoms or young fruits are injured or not until they can be pulled off easily, or they fall from the tree. As this does not happen frequently until some weeks after the injury, all traces of the true cause, and there are several others which would cause them to fall, are therefore lost sight of.

The flowers of the Apple and Pear whilst they are in their full beauty, as shown by fig. 1 (Apple blossom), indeed, some-

times whilst yet unexpanded, may be killed, and yet show no outward signs to the general observer.

The accompanying fig. 1 represents a healthy and perfect



Fig. 1.

example of the blossom of the Apple, showing it in its perfect and uninjured state. The style, as will be observed, is in this example in its natural healthy pale green colour.

Fig. 2 represents Apple blossom at the same stage, and in the



Fig. 2.

same condition in every part but one. The style, it is to be observed, is in this instance black, and the thin black threads extend from its point right to the ovary or embryo fruit at the



Fig. 3.

bottom. That flower is killed by frost, and yet the flower

itself, the beautiful petals, and the little stamens in the centre, are as lovely as ever. The vital spark, however, the fruit which was to have been, is gone. It is dead.

Fig. 3 represents a healthy and perfect example of the young embryo fruit of the Pear as it exists in its uninjured state. The style in this instance, as in fig. 1, is still of the natural pale-green colour. A represents a cross or transverse section of the fruit in its perfect state.

Fig. 4 represents a young embryo fruit of the Pear, also in section, as at a, showing the effects of the frost after the fruits



Fig. 4.

had been set and begun to swell. The style here, as will be again seen, is, as in fig. 2, black, and the injury may be traced to the centre of the fruit, as shown at a, which is a transverse section of the latter. Fruits like these, having black hearts, are also dead, being killed by frost.

In the case of Strawberries the effects of frost on the expanded blossoms, and it is but rarely they are injured at any other stage, is very readily apparent, and pretty generally understood by the term "black eyes."

Fig. 5 represents the healthy and perfect blossom and embryo fruit (receptacle) of the Strawberry; fig. 6, with the

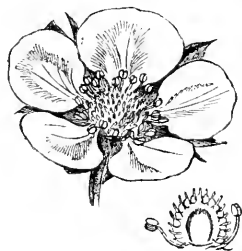


Fig. 5.

black centre or "black eye," has the fruit killed. It is here also only the styles and ovary that are injured, not the stamens and petals which remain beautiful as ever, though the fruit is dead. Strawberry blossom is sometimes injured in the same way by heat or strong sunshine.

It will be seen, therefore, that the most tender portion of the flower or fruit is the style or pistil, and that is the vital part; when that is injured in any way, however slight, the uses of the flower are at an end. The stamens are almost as hardy as the leaves, and are very rarely injured. The petals, also, which are the beautiful part, stand a good deal of rough usage. They are, however, of no benefit to the fruit. To discover when Apples or

Pears are killed by frost, simply look to the pistil, which very soon shows the effect; if it is green it is well, if black then it is



Fig. 6.

dead; and for further satisfaction cut transversely through the young fruit, and experience will soon teach, even with the fairest flower, the value of a black heart.—ARCHAMBAUD.

### THE AMATEUR GARDENER.—No. 1.

(CHAPTERS NOT IN WALTON.)

A GARDEN—TIME, AN EARLY MORNING IN JUNE.

"One, who long in poplars city pent,  
Where houses thick and sewers annoy the air,  
Forth issuing on a summer's morn to breathe  
Among the pleasant gardens and the fields  
Adjoin'd, from each thing met conceives delight."

HORTATOR.—What, Civis! Can I trust my senses? What sudden calamity has driven you from your bed at this unreasonable hour, and translated you from the warmth of blankets to the breezes of the country?

CIVIS.—Nay, friend, Hortator, don't be too hard upon me; no misfortune has overtaken me, but the warm rays of the sun in this beautiful June morning so roused me from my sleep, that I thought I would fain see with my own eyes whether it was really true that you worked thus early in your garden, and I am well satisfied with the result of my unwonted vigour.

HORTATOR.—Well, I am delighted to see you, from whatever cause I am indebted for the visit; and if I could induce you to follow my example you would thank me to the end of your days, and would find a new element in life, affording you an exhaustive pleasure. But come, let us take a stroll round the garden while breakfast is preparing, and excuse me one moment while I run into the house to apprise my wife of the unexpected pleasure of the companionship of a friend at our simple breakfast-table.

CIVIS.—What a lovely morning! What a soft balmy air! How delicious the scent of the Sweet Briar! and what a perfume is wafted from the bed of Roses!

HORTATOR.—Yes! Here is no pungent smell of Musk, no strong artificial perfume, which rather offends than pleases the senses. This is Nature's own laboratory, a natural floral distillery, an evidence of God's still "walking in the garden in the cool of the day."

CIVIS.—And what music too! How delightfully that thrush sings in yonder tree!

HORTATOR (smiling).—Pardon me, friend Civis, but I am a little amused at the evidence of your town breeding, or may be, your unmusical ear. The bird whose flute-like note you now hear is not the thrush or the "morvel," as the old writers called it, but the blackbird. Pay me a few more morning visits and I will soon teach you, unless your ear be dull indeed, to distinguish between the two. But now the blackbird has ceased, the thrush has taken up the song. Mark, what a change of note! the one soft, mellow, and broken; the other bold, varied, and continuous. I know not of what men's hearts can be made who can destroy these delightful songsters, the pride of English rural life, the charm of our gardens and pleasures, who sing the great Creator's praise with sinless throats.

CIVIS.—But are they not terrible destroyers of fruit?

HORTATOR.—Well, I admit they do sometimes thin our Cherry trees, reduce our crops of Currants, and steal a few Strawberries; but all this black mail I would gladly sacrifice in payment for their sweet notes and melodious voices. Besides, with a little care and a very little expense their depredations may be reduced to the smallest of misdemeanors, not for a

moment to be considered in comparison with the charm of their companionship. Who would weigh in the balance a few pounds of Currants with three months' harmony of song?

CIVIS.—What a charming residence you have here! How have you contrived to cover your house with such a profusion of climbing plants? How redolent is this Honeysuckle! How lovely this Clematis! Am I not right in its name?

HORTATOR.—Right, and yet wrong, my dear friend. I believe it is now admitted that its proper pronunciation is "Clematis," and not "Clematis." It is often difficult to know the right pronunciation of the names of flowers, so many being arbitrary; but when it is possible it is desirable.

CIVIS.—Why, I well remember this delightful residence of yours as a large, ugly, bleak house with staring windows and red walls; and now, as with a magician's wand, you have converted it into a very paradise of English comfort and luxurious repose.

HORTATOR.—Say not "luxurious repose," I like not the expression. The changes you describe have been made by constant labour and prudent foresight. What pruning, tying, watering, and nailing have been required to get these climbers into proper position! But, hark! the prayer bell is ringing, and I am wanted to officiate as domestic chaplain. Come, friend Civis, you must be one of our congregation this morning, and we will ask the blessing of Him without whose favour neither fields nor gardens can yield their increase.

CIVIS.—Willingly indeed will I join your little band of worshippers.

#### THE BREAKFAST-ROOM.

HORTATOR.—Sylvia! my friend Civis, who has favoured us with this early visit to satisfy himself whether it be really true that I am so weak-minded as to deprive myself of the comforts of a warm bed to enjoy the slow pleasure of cultivating this favourite garden of ours.

SYLVIA.—Welcome, sir, most welcome! Whatever be the object of your visit, the friend of my dear Hortator would always be a welcome guest.

CIVIS.—Thank you, madam, very sincerely; but your liege lord is inclined to be somewhat facetious at my expense. I never suspected the soundness of his intellect, though I confess I did somewhat his discretion; but really, madam, these perfumed breezes, and these sweet songsters, about which I have already received a practical lesson from Hortator, have well-nigh already made a convert of me.

SYLVIA.—Favour us, dear sir, with a few more morning visits, and I trust we shall make a real convert of you.

CIVIS.—It will not be fair, however, in that case to place upon your breakfast-table such blushing bribes as these. Why, I never saw such Strawberries before; the morning dew still shines upon them, and the very atmosphere of the room is redolent with their perfume!

HORTATOR.—Try their flavour, Civis, and judge whether their pretensions are to be trusted. It is not always that handsome looks are indicative of good people, nor are good looks always a proof of good-flavoured fruit.

CIVIS.—The flavour is exquisite. I have heard that various names are given to different descriptions of Strawberries, what may this be?

SYLVIA.—The British Queen.

CIVIS.—Happily named, indeed, for its delicious flavour may be well compared to the sweet savour of our beloved Queen's good works.

SYLVIA.—I am delighted, sir, to find that you are a loyal subject, for I only like to call such the friends of my dear husband.

HORTATOR.—Yes, indeed, my fastidious wife, I believe, would scent a republican at the distance you did the Roses, friend Civis, but not with the same appreciation of their fragrance.—HORTATOR.

THE FLOWERING AND FRUITING OF *ACUTERA JAPONICA*.—Mr. P. S. Robertson communicated to the Edinburgh Botanical Society some notes on this subject. He had observed that recently-introduced female plants from Japan (grown in a cold pit) came into flower in January and February, while the male plants, grown in the same circumstances, never came into flower till the middle of March, yet he had every year obtained a crop of young seedlings from the berries, although the female flowers were quite shrivelled before the male ones expanded. He found that the common spotted variety, long grown in this country, does not flower till May or June, although grown in the pit or house with the others, and begins to expand its

flowers when the males are getting past; yet it also never fails to produce a crop of fruit with perfect seeds. He thought that the pollen must lodge for some time in the scales of the unopened flower-buds, or must reach the pistils before the flowers are expanded; but how to account for the fertilising of the early-flowering varieties he was at a loss. This year he has forced on the flowering of the male plants by placing them in strong heat, and has all the varieties of the male and female plants in full flower at very nearly the same time, and accordingly he anticipates a much larger produce of berries than in former years, when they were left to the ordinary course. He exhibited a branch bearing berries with perfect seed; yet when that plant came into flower there had not been a male plant in the house where it grew for fully a month previously. Mr. Sadler stated that he had been informed by the Messrs. Lawson that when there was a great lapse of time between the flowering of male and female *Acutera* plants, they frequently collected the pollen and kept it wrapped in paper until such time as the female flowers were ready for fertilisation, when it was applied to the stigmas, and thus secured invariably a crop of fruit with perfect seeds. By grafting the male plant on the female, the two kinds of flowers might expand nearly at the same time.—(Nature.)

#### WORK FOR THE WEEK.

##### KITCHEN GARDEN.

*Asparagus* is likely to be severely out this year on account of the lateness of our vegetables, and the beds should therefore be liberally supplied with stimulants in the shape of liquid manure and salt; the cutting, however, must be gradually lessened. Keep the beds free from weeds, and discontinue entirely the cutting of young beds. A few drills of *Cape Broccoli* may be sown in light rich ground, to be thinned-out and kept standing. The full crops of *Red Beet* must now be thinned-out to about 9 inches apart. The trenches which have been prepared for early *Celery* should now be planted without delay; lift the plants from the nursery-bed with a good ball of earth, and plant them at a foot apart, using a trowel or small fork in preference to a dibble; give them a liberal application of water, and after they have started into growth plenty of liquid manure poured upon the soil from the spout of a watering-pot without the rose. If, from drought, the tops require freshening, a sprinkling of pure water is best. Prick-out late-sown *Celery*, and keep all young advancing crops well supplied with water. Thin-out young seedling *Cucumbers* and *Vegetable Marrows* on ridges, and see that those transplanted do not want for water. Continue at regular and short intervals to tie-up *Lettuces* for blanching, and thin-out all advancing crops of the Cabbage varieties, which are always best left to perfect themselves where sown; and if small sowings be made at short intervals, transplanting will be superfluous. Keep up successional sowings of *Radishes*, *Lettuces*, and *Salads*, which now require to be sown often in quantities proportioned to the demand. The north side of a sloping bank is the best situation for these sowings. Continue to keep the surface well forked-up amongst the growing crops of *Peas* and *Beans*. This is at all times attended with the most beneficial results, as it increases their productiveness and, by keeping them in a vigorous growing state, assists greatly in warding off mildew, which too often attacks the late-sowings. This may be accounted for on the supposition that pulverising the soil, besides exposing it more to atmospheric influences, retains moisture about the roots during drought; and drought, together with the hardness of surface, is favourable to the production of mildew. If this begins to show itself, a very weak solution of salt and water sprinkled over the top will keep it in check. Continue to make successional sowings of *Turnips*, and dress both these and other crops likely to be infested with the fly with charcoal dust when the leaves are wet.

##### FRUIT GARDEN.

Great activity must now be exercised in this department, as the rapid growth of the trees will require constant attention in stopping, removing superfluous shoots, and nailing in. Patches may now have their final disbudding; let every shoot not required be removed with a sharp knife, and the remainder carefully nailed-in; if any of the extreme shoots are getting out of bounds they may be stopped within a few joints of the base in order to preserve the fruit, but take care to train-up another shoot to succeed. Keep the lateral shoots of Vines closely stopped at the first joint; the practice of removing them altogether is not consistent with nature. We should

always endeavour to assist the operations of nature, as well as judiciously check over-luxuriance even in this respect. I know of no tree more tractable than the Vine.

#### FLOWER GARDEN.

In planting out *Verbenas* and other mass flowers, the ball of earth should be slightly opened if at all solid. The beds should be well worked, and in a uniform state as regards moisture, and the ball of the plants thoroughly soaked with water a few hours previously. If dry weather prevail for a week or two after planting, let the newly-planted beds be sprinkled two or three times a-day, merely blackening the surface, and in order to prevent its becoming dry, rather than impart any moisture to it, some of the gross kinds of *Polygonum* may be planted in nudubeds, the solidity of which will check over-luxuriance. The *Frogmore Scarlet*, however, will require a little cultivation. Tulip roots should be immediately taken out of the ground when the foliage assumes a yellow, withered appearance. In the present season in particular, from the damaged state of many collections, this should be carefully attended to. Should the bulbs be in a decayed state, the exterior coverings or skins should be removed, which will, most probably, bring many from a flowering state to that of mere offsets. They may, after being divested of all diseased parts, be put away in a cool, airy situation. *Ranunculuses* will shortly be in bloom; these, to keep in perfection for some time, should have a slight awning over them, and an occasional watering between the rows will be of service.

#### GREENHOUSE AND CONSERVATORY.

The early-forced *Camellias* now showing bud may shortly be placed out of doors. A shady border is frequently resorted to. We would, however, place them facing the sun, and provide a light canvas screen to throw over them. All young or other stock growing forward must now have much room. Make it a rule to let no two specimens touch. Take out all rough, exhausted, or inferior plants. Very young stock of *Ericas*, *Epicurises*, and small fancy *Nor Holland* plants will be best in a pit or frame, placing the lights so as to face the north. The glass must be clean-washed, and the pots raised above the ground level on ashes, or, better still, on tiles. Pinch off the decaying blossoms of hybrid *Rhododendrons*, give liquid manure, and if wanted for early flowering endeavour to force them slightly into wood. Put some young *Thunbergias* into their final pots; for trellising these are useful, and keep up a late display. The Coral tree (*Erythrina Crista-galli*) is a fine old plant. Cuttings may be made of the young shoots of the plants which have been headed down. The old plants started in heat in January, and now exhausted with flowering, if removed to a cool and light greenhouse, and suffered to go to rest, will bloom well a second time in September by the excitement of heat and moisture, after resting a few weeks.

#### STOVE.

Thorough cleanliness, free ventilation, plenty of atmospheric moisture, and occasionally a slight shading in very bright sunshine, are the chief requisites in this structure. No means should be neglected to encourage free growth at this period among the *Orchidaceans* tribe, in order to have their pseudobulbs firm, well fed, and well ripened early in the season.—W. KEANE.

### DOINGS OF THE LAST WEEK.

#### KITCHEN GARDEN.

*Water Supply*.—When last we wrote we were rejoicing in the welcome rains, which did much to refresh the earth, but were not sufficient to yield a supply for future demands. Scarcity of water meets us at every point in a dry summer, as we have nothing but rain water to depend upon. Several of our friends are no better off than on slaves, and tanks and reservoirs are the order of the day. In many cases the tanks are already low. In one case where the want of water is much felt, it is in serious contemplation to make some fresh and larger tanks. But though standing high, there is a small river flowing at 700 or 800 yards distant. We have no doubt that a well and a steam engine to force the water up the hill, would be by far the cheapest arrangement in the end, for securing a good supply of water. In such cases the mansion and offices could also be supplied, as even a 12-inch pipe would deliver a great amount of water when constantly in use. There cannot be much objection to a steam engine, except the smoke which more or less must come from it, and even that can be rendered very trifling. Wherever there is a stream handy, and a rivulet can be taken from it, so as to secure a 6 or 8-feet fall, a water-ran-

could be used, which would work continuously. In many cases where a river falls considerably, a small rivulet may be taken from it, so as to work a breast wheel, whilst the overflow goes on to the general stream. One of the finest examples of this we have met with is at the Messrs. Burns', close to the Phoenix Park, near Dublin. The clear waters of the Liffey are thus raised to the top of a high steep bank, and yield a good supply to the mansion, offices, and gardens. With no stream nearer than four miles such helps are out of the question, but still in almost every place enough of water could be saved if means were adopted to preserve what falls.

We have lately heard of several large gardens having been formed without any consideration being bestowed on the water supply. How water is to be obtained, ought to be the first consideration in all new gardens. Where water can be laid on so as to be applied with force, or gently as by irrigation, there can be no comparison as respects labour, when contrasted with carrying or wheeling every drop that is used; besides, in many cases there is but little labour power available for the purpose, and many operations must be timed, not so much as to when it is best to perform them, but as to when the help of water can be given.

The great heat of the 20th and the 21st and little appearance of a change, rendered the ground apparently as dry as it was before the showers came. Surface-watering was, therefore, with us out of the question. We must depend on the moisture beneath. It was not the want of moisture that prevented rapid growth, but the coldness of the soil. On the 20th and 21st *Potatoes*, *Peas*, and *Beans* lengthened so fast that you could almost see them grow. Dwarf *Kidney Beans* that lay in the ground as if refusing to germinate, suddenly burst their shell and appeared above ground, the dry surface being no impediment. Our watering in the kitchen garden has been confined to fresh sowings of *Peas*, *Beans*, *Lettuces*, *Turnips*, &c. In the case of *Peas*, a wide flat row was used, forming a shallow trench some 8 inches wide. This was more enriched than the general ground, and was slightly trodden and then well watered before sowing. The *Peas*, after having been red-leaved, were sown thinly over a space of 6 or 7 inches in width, and then were slightly patted down to the moist soil, and the dry soil was put on as a covering. We have found this plan the most economical for making a little water go a long way. In a moist season such care would not be necessary, but in a summer like this the dry soil on the surface prevents the moisture beneath so freely encasing, whilst nothing is done to arrest the ascent of moisture from beneath, which surface-watering always does less or more. Frequently, even in dry summers, *Peas* have done well that received no more watering than the wetting of the soil previous to sowing. In ordinary cases the soil in the trench might be watered after sowing, but with us that would not do, as the water would wash away the red lead. Small seeds, as *Turnips*, had merely a little water run along the drill with the spout of a pot, and the dry soil placed over the seeds. In ground dug some time, watering was not needed, as it was easy to make the drills a little deeper, so that the seeds should go at once on the moist soil. In this case care must be taken not to cover too deeply. The plants will do none the worse in such a season if they stand in a little hollow.

*Peas* in 10-inch pots have done very well this season. We need to transplant them into the fruiting pots, and we think we thus had them dwarfed and rather more prolific. This year we sowed in the pots at once in rather rich loam, and the *Peas* have grown more than usual, many of the pots of plants of *Tom Thumb* being close on 2 feet above the rim of the pot. These furnished early gatherings in the orchard house, but part of them were rather in the way, and we removed the pots to the front of a south wall, and they have even done better there, swelling and podding freely. Though we set the pots on some rotten dung, the only drawback is the watering the pots require. Had we an earth pit with a good exposure at liberty we would have plunged the pots so as to save watering. We shall put some others, probably, in a trench bed intended for *Celery*. Those in pots and sown out in front of the orchard house come in very useful before we can gather plentifully out of doors. There has always been a little playful contest here as to whether the *Peas* or the ducks would be ready first. Sometimes the *Peas* have defeated the ducks hollow, but this season we believe the ducks had the best of it by a couple of days or so. Of course, by sowing in the autumn in pots we could have them some ten days earlier. Other dwarfs are better coloured and better flavoured than *Tom Thumb*, but we have had none that come in so early with us, and first *Peas* will always

be good, because they are Peas. After the fine Marrows come in all the small early sorts are little thought of. Among early kinds, there can be no doubt that Ringleader, Carter's, Dickson's, and Clatter's Early will thoroughly defeat the best and truest samples of Sangster's No. 1; but then, so far as our experience goes, Sangster's is by far the best for free growth and free podding.

#### FRUIT DEPARTMENT.

For general remarks see notices of previous weeks. We gave a little manure water to *Strawberries*, and should like to give them a fair drizzling before placing dry litter between the rows. Old plantations we see are throwing weak footstalks, and opening the blooms very irregularly. Younger plantations, and those turned out of pots last year, are coming away strongly with very little help from the waterpail. Such sunny weather as we now have will hasten them on more rapidly than we expected, but we shall scarcely be safe in depending on a supply out of doors until the middle of June. If so, we shall find those we took up and potted the other week, and those we planted in a bed under glass, very useful. We can also put glass over a sloping bank, which will hasten ripening in sunny weather, but will accelerate it but little in dull weather. On the whole, rather small, well-ripened plants in what are called 6-inch pots have fruited most profusely with us this season. Larger plants, and in larger pots, did not yield quite in proportion to their size. A number of late ones we have in pots in a cool case—that is, in front of an open orchard house, look rather weak, but they are plants from which the main central bud was eaten out by mice, but the roots being strong and good, fresh smaller buds were thrown out at the sides, and as these showed bloom, though rather weakly, we kept the best to see what they would do. All the earliest plants have been turned out into a border as they finished fruiting. This set the pots at liberty, saved watering, will give us *Strawberries* in autumn, and we have no doubt heavy crops the next season—that is, in the summer of 1871.

*Melons*.—In a three-light pit, heated by hot water, and rather hot at one end, the plants, turned out in a narrow bed, and growing freely, all at once had the larger leaves spotted, and then these began to shrivel at their edges. As the large leaves are more sensitive to casualties than younger leaves full of vitality, we ascribed the evil to extra heat and deficient air, in so far as allowing a powerful sun to beat on such leaves before they were quite dry. In the same range, but farther from the heating medium, one plant in five lights is a little affected in the same way, and as there the same circumstances do not exactly apply, we are doubtful if the scorching and blotching theory is a sufficient explanation. This spotting and blotching commenced nearest the front wall, where the sun would exert less power than farther up, where the leaves seem green and unaffected. There is no perceptible reason why one plant in the five lights should be a little affected, whilst the other plants are not as yet in the slightest degree touched. In these five-lights the *Melons* were planted in the centre, and the whole space, back and front, was filled with small plants which we wished to forward. These we had to clear out, so as to be able to set out the *Melon* plants properly. We have several times given all the details of management. In our case it is chiefly based on a fact and a desirability. The fact is that *Melon* plants, as a rule, though not without exception, show fruit most freely on the tertiary shoots, whether grown in a bed or trained to a trellis in a house. The desirable thing is, that before the plant shows fruit there should be strength and vigour in the plant to set and swell the fruit. From this one desirable thing comes another, that there should be room for good large foliage, and that there should be a minimum of small, useless shoots on the plant. To gain these objects proceed thus:—The stem that rises from a *Melon* plant we call the primary shoot. When you nip out the point of that shoot, from every joint below it will come a secondary shoot. Leave what number you like of these, according to the number of plants in a light. These secondaries are the branches—the framework, so to speak, of the plant. At every joint on them will come another shoot, the tertiary shoot, and generally showing fruit at the first or second joint. We do not wish these to show near the root, because there would not be strength enough in the plant. As these secondary shoots grow, we nip out the incipient tertiary shoots in the axils of the leaves for a space of 2 feet or so from the root, longer if the space is wide. Then when beyond the disbudbed part the secondary shoots have grown three or four joints, we nip out the point of the shoot. This will cause the tertiary shoots

near the point of the secondary to come out freely; and as the fruit shows on them let the shoot be stopped the first joint above the fruit. One thing more is important, and that is to get the fruit on these tertiary shoots on each plant set at one time. On this account, the simplest plan for beginners is to have more plants, and only take two secondary shoots from each plant. On the tertiary from the points of these secondaries, you will set fruit more equally than if you had four or six secondaries from each plant. This care is based on another fact, that however strong and vigorous a *Melon* plant may be, if one fruit is set and begins to swell freely, it is next to impossible to get another fruit-flower to set and swell freely. If two or a dozen fruit are wanted from the same plant, these must be set and begin to swell about the same time.

#### ORNAMENTAL DEPARTMENT.

Proceeded with lawn, turf edgings of walks, getting them all straight and right; went on with edgings for flower beds, and preparing beds for planting, as we are averse to planting out much until we can see our way more clearly as to water, and as the bulk of our plants are in beds of earth they will take no harm for some time yet. The ground until about the 20th, was too cold for the generality of bedding plants. The beds and borders have been several times rough-dug during the winter and spring, and if the present dry weather continue we shall level the loose surface without turning it over, so that the dry surface shall remain there, and we can then plant at once in the damper soil beneath. But for the dryness we should turn down repeatedly this warm dry surface soil, and thus make a sort of hotbed by turning down subsoils. With present appearances we must think less of heat than of moisture in the beds and borders.

*Gladioli*.—We had some massive rows of the scarlet *Gandavensis*, but they had been from two to three years in the same place, and thus the bulbs had become crowded and risen on the top of each other, which would interfere with free rooting and massive flowering. Owing to a layer of dung being placed over them they had not suffered from the frost, and the spring heat had not brought them forward. We trenched them out, some having pushed 6 inches, and others not above 2 or 3 inches, and planted them in double rows, the forwardest at the back and the dwarfest in the front to come in in succession. The roots were covered up so as not to be injured before they were planted. In planting we took out a trench, dug it well at bottom with some rotten dung mixed with it, then a layer of a mixture of rotten dung and light sandy loam, in which the roots were well firm, a little more fresh soil added, a good watering given, and when settled the common soil placed at the surface. We feel sure that though late enough these will do well and bloom freely during the summer. Many bulbs are only just moving, and these will come in late. We have potted a number of the most forward, five in a 10-inch pot, to come in for corridors, &c., and later tubers than this potted will also come in useful. Many of the more delicate-coloured varieties will show their tints best in a glass-covered cool house.

Watering, and shading a little to lessen the need for watering, have taken up much time of the week, but a good deal has been done in potting, fresh arranging, &c. If this weather continue firing will be little needed, as there is no heat so good as sun heat. Floors and stages in houses can hardly be kept too wet, so as to secure a moist atmosphere.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending May 24th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	8 ft.		
Wed... 15	30.165	30.158	73	33	55	53	S.W.	.00
Thurs... 19	30.158	30.043	81	37	57	51	S.W.	.00
Fri... 20	3.099	30.064	79	48	57	51	S.W.	.00
Sat... 21	30.054	29.959	86	45	69	52	S.W.	.00
Sun... 22	30.041	29.937	82	54	60	53	W.	.00
Mon... 23	30.209	30.197	82	59	58	53	N.E.	.00
Tues... 24	30.248	30.171	77	59	54	53	W.	.09
Mean.	30.145	30.071	77.00	57.14	57.24	51.71	..	.003

18.—Exceptionally fine, clear and very fine.

19.—Very fine; clear and fine; very fine.

20.—Very fine; cloudy but fine; very fine.

21.—Foggy and overcast; exceedingly hot; fine, lightning.

22.—Very fine; exceedingly fine; overcast.

23.—Overcast; foggy; overcast; densely overcast.

24.—Very fine; fine and clear; fine at night.



with dark Coleus, a row on each side of Centaurea, then a row on each side of Mrs. Pollock Peltandra, and then next the grass a row all round of Golden Pyrethrum. Here you have a double yellow so far, and the yellow bronzes next the purple. We think it would be better to have Centaurea in the middle, Coleus round it, and then the Pyrethrum or Mrs. Pollock, with blue or purple round it; or, as you state, Coleus for centre, Centaurea next, followed by scarlet, and then Mrs. Pollock, &c. Then as respects the ribbon border, instead of having Beet, back row, Bijou Peltandra, and Calceolaria, we think, if the plants were a fair size, have Bijou Beet, Calceolaria Alba floribunda. We cannot, however, say we fancy Beet, it reminds one so much of the salad. We would prefer Coleus, Perilla, Iresine, &c. All such beds would be improved by a string of Cerastium, of which you say you have plenty, next the grass; and a little blue Lobelia between it and yellow would tell well.

**EVERGREEN CLIMBERS FOR CONSERVATORY (B. B.).**—For the back nothing answers so well as Oranges or Camels, though if the wall is not shaded, or but slightly so, Habrochlamys elegans, Luculia gratissima, and Habrochlamys auriculata, are fine winter or early spring-flowering plants, the last two sweet-scented and fine for all flowers; so, too, are Oranges and Camellias, which are what we recommend. If you wish for a plant for the back part of the roof, Lycopodium rostratum succeeds well in such a position. For the front, Jasminum grandiflorum, Kenechya Martiana, Mutisia Clematis, Passiflora coccinea racemosa, P. Comita Nasaridoro, Mimosa prostrata, Soliva heterophylla, and Tacsonia Van-Volxemi.

**NAMES OF INSECTS (C. C. E.).**—The caterpillars sent are part of a quite young brood of the common Lichy moth, Bombyx Neustria, which generally live in large companies in a web on fruit trees. We believe the mischief to the buds was not occasioned by these caterpillars, but by one of the destructive beetle-like weevils (Curculio oblongus, or one of the Otiorhynchus genus), or probably by the larva of some Tenebrionid (A. K. C.). The beetles sent are the common Rose Beetle, Coccinella aurata. They are not carnivorous, but feed on vegetable matter underground in the grub state, and upon leaves and flowers in the perfect state. They live underground for some time after assuming the perfect beetle form, ready to emerge on the first fine day. This has been in the present year before the Roses are in bloom, and with us in Oxfordshire they are now swarming on the Lilac.—W.

**NAMES OF PLANTS.**—We have received some specimens from "Jago," and from Truro, so defective that it is impossible to name them. Specimens should be sent in a box that will resist the post-office stamp, and packed in moss slightly damp. (Apt. Dublin).—Not one of the specimens was numbered. (Julia).—Cereus luteolus, the Eucharis's Nightshade, a deadly poison. (W. Herbert).—Jasminum Maid of Orleans, a very double variety of Jasminum. (A. North).—1, Asemonea nemorea decem-petala; 2, Ranunculus aquatilis; 3, Cardamine pratensis. (R. J.).—1, Veronica, the species not yet recognised; 2, Saxifraga granulata (Greville); 3, The Snowflake, Leucojum aestivum. (W. Godbold).—1, Forsythia viridissima; 2, Suffered from the stamping in the post office. Kindly send a further specimen. (H. D.).—1, Not recognised; 2, Persian Lilac, Syringa persica.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### BROWN RED GAME BANTAMS.

I am glad that "GALLUS" has called the attention of committeemen to the subject of classifying Game Bantams in such a way as would be most likely to command both a good entry for their show, and also greatly encourage the improvement of the breed whose interest he advocates—namely, Brown Red Game Bantams. I think that this variety is at present very little appreciated because its beauties are very little known, for it only requires that anyone should see a perfect bird in order to at once fall in love with the breed, in preference to the Black Reds, Duckwings, and Piles, attractive as they are in colour.

I do not, however, wish to depreciate these varieties, for I myself am an ardent fancier and exhibitor of them; but am, nevertheless, of opinion, that were the fanciers of Brown Reds to improve their breed it would have a tendency to spur on the Duckwing and Pile fanciers to do likewise, especially if committeemen make the schedules with the classification advised by "GALLUS."

I am certain that if any of us Game Bantam fanciers were to patiently pursue the process adopted in procuring Black Red Bantams from their big great-grandfathers, and try it with respect to Brown Reds, that we would have something in Game Bantams far surpassing in style and beauty even our Black Reds, near as they are to their model. But breeders must have some encouragement, and for this they must look to committeemen, who can give it by placing in competition in the same class birds of an equal, and not more advanced, stage of development.

At Epworth Show, held a fortnight since, there was a very large entry of Game Bantams, notwithstanding the fact that there was only one class for them; but Duckwings stood first, Brown Reds second, Black Reds taking third, thus reversing a rule, if rule it is, that Black Reds are to take the preference of all the other varieties in a mixed class when merit is about equal. In fact, so much is this held to by some judges, that I have seen Black Reds of very inferior merit take the prize against splendid Duckwings and Brown Reds of much

superior style and points. Of course such judgment has the effect of discouraging breeders of Brown Reds and Duckwings; and I was glad to find that at Epworth Mr. Hutton was not disposed to keep to the opinions of some judges, who, perhaps, would have left all varieties out of the prize list except Black Reds.

However, I hope with "GALLUS" that committeemen will pay a little attention to this point, and I also hope in a few years to see an exquisite variety of ornamental poultry brought out in all its beauties and perfection.—ALEXTON, Lancashire.

### JUDGES REPORTING.

MANY complaints have been made during the last season as to the judging, and although it will be next to impossible to satisfy every exhibitor, I am of opinion there is nothing like publicity for the purpose of procuring a remedy for any abuses which may exist.

The cause of complaint I have is "that one of the principal arbitrators is also reporter to a leading and highly respectable journal," and it does appear to me exceedingly unfair that a judge should be in a position to report in a public newspaper on, and to praise, his own awards, which cannot fail in a measure to tend to the exclusion of unbiased opinions thereon. I do not for a moment assert that partial reports have resulted from such a position, but I do think that one judge should not be more advantageously placed than the remaining gentlemen who accept that onerous post, and who are always open to have their awards criticised by the public generally. This criticism must, to a certain extent, be limited in any journal where the reporter is a judge. To my knowledge several exhibitors have expressed their intention not to exhibit where it is known that any gentleman in the position I have named is to be the arbitrator; amongst them is—COLUMBA.

[We consider that our correspondent has stated his objection too broadly. There can be no objection to a judge sending a report of the exhibition at which he officiated if he has nothing to do with the editing of the paper to which he sends the report. We insert many such reports, but that would not restrain us from inserting adverse criticisms if valid grounds of complaint were shown to exist.—EDS.]

### NEW BOOK.

*The Canary: its Varieties, Management, and Breeding. With Portraits of the Author's own Birds.* By REV. FRANCIS SMITH, Groombridge.

FANCY poultry, fancy Pigeons, Canaries, and "such small deer" were formerly very badly treated. We recently fell in with a copy of a work published thirty years since, but oh! the ignorance of the writer; and as to engravings, the Game cock looked like a Dorking, and some of the birds unlike any fowls that ever lived. Then, also, books on fancy Pigeons were of a similar stamp, and in respect to those that treated of the Canary, all the varieties were jumbled together, or, if the writer was a Londoner, the London Fancy was described only as if it were the Canary of the world in general. The reason of all these blunders was that publishers thought that "such small deer" were too humble to be treated carefully: hence bookmakers, who never kept a bird, were not unfrequently the writers. But of recent years there has come a great change and improvement. Fowls, Pigeons, and cage birds are written of by those who understand them, who have kept many, and watched and noted their habits carefully. Thus Mr. Lewis Wright and others have written works on poultry fully understanding their subject; while the accurate and practical Brent wrote on fancy Pigeons and Canaries, and Mr. Blaketon has followed suit concerning the latter, with a more airy but equally accurate pen.

It is now our pleasant task to review the book at the head of this article. It is written in a happy story-telling vein, that would make strangers to the Canary read to the end, and then rush out and get one specimen, at least, of each variety; and as to Canary fanciers, they will, as we do, rejoice over the book. We read it at a sitting, as many have and will.

Mr. Smith was, and perhaps is, a Manchester clergyman, blessed with four young daughters. The father and one of the four got smitten with a love of Canaries, or rather are smitten over and over again, for just as they get possessed of one variety they want another, and so on, until they have in their aviary specimens of every variety of the bird.

The descriptions Mr. Smith gives of their visits to the different bird shows are capital. But in Chapter I. he puts in "a plea for the Canary." Says he, "Much has been said and written during the past few years to create a taste for the aquarium and the crawling cold-blooded inhabitants of the water, and every one was professing an interest in the gyrations of a goggling, gulping carp, or the antics of a minnow. But give me an aviary of Canaries, whose beautiful colour, elegant form, and charming docility and sweet song, at once please the eye, delight the ear, and enlist my sympathies. Strange—perhaps strange, that this beautiful bird is not oftener found in the homes of the middle and upper classes."

Chapter II. describes the "Origin of our Canaries." How first a present of a common "dickey" was made, and it was not said of him, as a penurious and ungrammatical person once said of a similar gift, "Confound all presents worth eating." Dickey, common though he was, started the taste. A home-made aviary was manufactured. The description of its making is so good, one almost sees it made. Then a joint-stock company was formed between the father and his delighted children. The aviary—anyone with a few shillings at command could make such a one—is in time filled with Lizards, Yorkshire, Norwich, and London Fancies, Belgians, &c. The names given are as pretty as the pictures, and the habits of each bird were carefully marked by their owner. Here is an account of the inmates of the aviary, which gives names and characteristics:—"Buttercup was the gayest of the gay, while Dandy would sit and mope on his perch for hours, immovable as Patience on a monument. Lady Grey" (charming name for a Silver Lizard) "was amiable itself, while Spangle, her lord and master, was irascible and fierce; Dandy was energetic; Sultan was portly and sedate; Marquis was mild and gentle; while Prince Charming was the essence of good breeding and propriety. Little Brilliant was lazy and greedy; Blanche was quick, while the Princeess was distinguished in her breeding and manners." Further chapters tell us how Lizards, Norwich birds, London Fancies, &c., were bought, and all told in a pretty, interesting way with apt quotations of prose and poetry. Then the joint-stock company went in for Belgians, to which Mr. Smith has evidently a weakness. Cinnamons (the tale about Symp is capital) are afterwards bought, then Turnstones, and lastly Germans. Then follow chapters on breeding, nests, and nest-boxes. Others are headed "Our Misfortunes" and "Our Industry," and lastly one whole chapter is devoted to cages.

Mr. Smith, we have seen, is very happy in his style, and in the names for his birds, and so is Miss Smith in her coloured illustrations, of which there are about a dozen, and we must also add that Groombridge & Sons have printed the book well, and put outside a pretty cover, with gold enough to please, and to match the most golden Canary.

Lastly, we must say that Mr. Smith's book is the prettiest book on the Canary that we have ever seen, and will give an impetus to the fancy. It will lie on the table of many a drawing-room, and, unlike many books there, will be sure to be read. It is a gift suited to a lady little or big, and we are sure will do much, as this Journal has done, to raise the Canary to its fit and proper place among us. "Has," says Mr. Smith, "our pretty favourite lost anything of its original beauty of plumage by its domestication? Is it less elegant in form, less docile in temper, or less loving and winsome in its manners than were its progenitors three hundred years ago? By no means. The beauty of its plumage, the elegance of its figure, the docility of its disposition, the charming familiarity which induces it to nestle without fear or reserve beside us, to say nothing of its melodious song, which has of late years been well nigh cultivated to perfection, are more striking than ever. Truly its interesting habits claim and deserve the attention of all classes, and if bestowed, would afford a never-ending round of innocent amusement and delight."—WILTSHIRE RECTOR.

**SILKWORMS.**—At Yateley, near Farnborough, Captain Mason has three acres of ground planted with White Mulberry trees, the leaves of which form the pasturage for a multitudinous stock of silkworms; and from his successful experience during the three years 1867, 1868, and 1869, he considers that a net profit of £10 per acre, after all expenses are paid, might be realised upon a plantation of 100 acres. The growth of Mulberry trees, of both White and Black varieties, is attended with very little risk in the mild and moist south-western counties of England, and, indeed, in any situation where the trees are not

liable to be cut off by early spring frosts. And where an un-failing supply of Mulberry leaves is forthcoming during the feeding season, there is nothing to preclude the prosperous condition of any number of worms, for modern invention has succeeded in housing silkworms, so that, by very simple but beautiful arrangements, precisely the right degrees of temperature and humidity, along with the requisite amount of ventilation, unaffected by atmospheric influences, are preserved throughout the critical months of May, June, and July. Invention, again, has introduced not only a new method of reeling cocoons by the aid of mechanism, but also a novel system of feeding the worms; and thus the cost of manual labour has been greatly diminished. It is reckoned that the moths from 1 lb. of cocoons will produce 1 oz. of eggs, and that 1 oz. of eggs will produce worms yielding 80 lbs. of cocoons.—(*Chamber of Agriculture Journal*)

## FURTHER EVIDENCE OF THE SUCCESS OF THE

NEW MODE OF CONTROLLING THE FERTILISATION OF THE  
QUEEN BEE.

The following letter, published in a recent number of the *Toronto Globe*, is from a correspondent who appears to have been entirely ignorant of the experiments already made by Mrs. Tupper in the same direction:—

Put the queen, with the selected drones, and some comb containing honey, in a box having a sliding cover and plenty of small gimlet holes through the top and sides for ventilation; remove the honey-board and place the box on the frames, so that the queen and her companions may be kept warm; put on the cap and leave them two or three days, and at the end of that time your queen will be purely fertilised.

The manner in which I made the discovery was as follows:—Last summer, in examining an Italian stock in which the queen had been superseded, I found a young queen just emerging, and being anxious to secure as many as possible, because the superseded queen was a pure Italian, procured from Mr. Thomas, Brooklyn, I rushed into the house, and seized the first thing that came under my hand, which happened to be my little daughter's empty toy box, placed her (the queen, not my daughter), in it, with a small piece of honeycomb and a few bees for companions, among which were two drones. Just then a telegram was handed to me, requiring my presence some sixty miles away at the earliest possible opportunity. As I could barely have time to get to the railroad station, and the matter was of much importance, I just placed the box on the frames without replacing the honey-board, but replaced the cap, and prepared for the journey. I was absent rather more than two days and a half. When I returned, I immediately looked after my "fertilised queen," and found her all right, having the marks of fertilisation.—O. FITZWILKINS.

## DROPSY—LIGURIANS—LONGEVITY OF QUEENS.

A HIVE of bees is now puzzling me. The bees come out in great numbers every day, and fall to the ground in a very helpless and pitiable condition, if I did not know to the contrary I should say they were dying from want of food. The queen is a fine Ligurian, and must be very prolific, as the hive is strong notwithstanding the disease, and pollen gathering and breeding go on uninterrupted. I have had one strong stock entirely destroyed by mice, and another left in a very dilapidated condition. I have kept Italian bees four years, and find them superior in every way to the black bees, and the hybrid are good in proportion. The queen received from Mr. Woodbury in May, 1866, and one (the only one that season) raised the following July, are both alive and respectively at the head of the two most prosperous stocks I have.—S. B. Knowle.

[Your bees are doubtless suffering from "dropsy," a disease first noticed by Mr. Woodbury, and described by him in our columns on the 26th December, 1865. The following is the mode of treatment by which he succeeded in effecting its cure.—"Selecting a fine day, and spreading a cloth on the ground, I looked over the combs until I discovered the queen which I imprisoned in a queen cage, and then set the hive on the ground, putting an empty one in its place. I next took out the combs one by one, brushing off every bee on to the cloth, placing the combs in the previously empty hive, and completed the operation by putting on the crown-board and introducing the queen at the top. In this way I effected the end I had in view, which

was, that no adult bee should be permitted to enter the new hive that was unable to rise from the ground and gain the entrance by means of its wings. A number of infant bees, as yet unable to fly, were unquestionably lost; but I spared no pains in rescuing as many of these as possible, and had the satisfaction of finding that I had at length effected a radical cure."

**HOMI-MADE SUGAR.**—According to *Nature*, Belgium sent us during the year 1869, 3000 tons of meat, poultry, and rabbits; and the birds, at any rate, we might as well have fed and hatched at home. Belgium exported in the same year 31,375 tons of raw beet sugar. What prevents us making sugar for ourselves in the United Kingdom? Certainly not climate, for the Hon. Agar Ellis, M.P., has grown sugar-beets this year in several parts of Kilkenny county; and Dr. Voelcker's analysis of the roots finds a proportion of 8.94 to 10.91 per cent. of crystallisable sugar, while a proportion of only 8.5 per cent. is said to be sufficient to remunerate the sugar manufacturer. The sugar-beets grown near Lavenham, Suffolk, in 1868 contained, according to the same analyst, from 9.62 to 12.84 per cent. of crystallisable sugar.

**WHITWORTH AND ROCHDALE SHOW FOR POULTRY, &c., &c.**—We put the et-ceteras because there are prizes offered for Pigeons, Rabbits, and many other things, of which we can only say—See catalogue. The exhibition is to be in the grounds of W. E. Royds, Esq., for whose exertions the Society are under no small obligations. We need no more than refer exhibitors to the following tempting list:—Forty-one silver cups, valued at from £10 to three guineas, and twenty-eight classes for Pigeons, in which £57 7s. will be given; five for Rabbits, £3 15s.; and 190 for poultry, £257 7s.

### OUR LETTER BOX.

**WHEELING IN FOWLS (A. Ball).**—It is probably the result of the cold variable weather which occurred at the commencement of the month. As your bird has no grass nor give him lettuce leaves fresh twice daily.

**FEEDING FOWLS—HODGKINS' COMBS AND FEATHERS (Discontented Poultry-keeper).**—An amateur who loses nothing by his hobby has no ground for complaint, but it is probably because of his bird feeding there was no profit. Over-feeding cuts both ways; it not only costs a great deal, but it prevents laying. It increases the cost and lessens the produce. In Houdens, as in other hoes, the comb is more developed at the laying season than at any other. A well-developed comb is not a disqualification, but if, as is sometimes the case, it amounts to deformity, it would be. In looking for perfection a rudimentary comb must be insisted on. Yellow feathers are a disadvantage, but they are bearable; red ones disagree. You cannot predict the colour of your chickens till they are from twelve to sixteen weeks old. Uniformity of marking is not essential.

**BONES FOR FOWLS—CURING FACE-TUMOURS (W. A.).**—We have never used bones, and do not find them necessary. They could be bruised very small in a common mortar with a heavy pestle. If covered with a cloth while being used the splinters will not fly about. Such tumours as you mention are often cured by frequent applications of cold water and vinegar. If they will not yield to that, and if there is no discharge when they are opened, use some iodine ointment.

**KEEPING DUCKS (Crested scoundrel).**—It would be better if the Ducks were hatched in April instead of June. Of what breed are they? We would rather have a two-year-old drake with young Ducks. It is established that water is positively necessary for success. The latter quality is impossible where there is no water. Anybody is not far from you; take a trip there, you will find it the head-quarters of Duck lore. Before we can advise you, we must know the extent of your land and water with all its conveniences.

**HENS MOYING AND DYING (G. N.).**—We do not understand the disease. It is caused by any piece of skin, the removal of it would be the cure. Examine them closely and after you find the head and neck of the bird on the ground oats, mixed with water. Discontinue the oats, wheat, and Indian-corn. Supply them liberally with road grit.

**FEEDING GAME CHICKENS (C. D.).**—Bread and milk, chopped egg, branched wheat, and curd.

**HAMBURGH COCK'S TAIL-FEATHERS FALLING (P. A.).**—Are you sure the feathers fell out? Did not the hen eat them, or, at least, pick them out? Ascertain that the opening of the oil gland is open. If it is not, you must open it, which can be done by pressure on the glands. It must be gentle. Rub the tail thoroughly with sulphur ointment. The feathers will grow again, and there is no fear of hereditary nakedness. It will be advisable to remove the cock from the hens while the young feathers are forming. If they have not already picked, they are sometimes tempted to do so by the sight of the naked and red skin.

**TIME OF ROOSTING (S. A. R.).**—As a rule fowls are the best judges of the proper time to roost, but there are asperous souls, especially among the young cocks, that look above the level, and must perch. As they lack judgment in choosing their resting place, the safest plan is to give them no means of doing wrong. Let the perches be low and broad. You may take a pole—five or six or otherwise—16 or 18 inches in circumference, saw it in half, and fix it within 2 feet of the ground, and 18 inches side uppermost. Ours do not perch till they are at least six months old.

**EGGS NOT HATCHING (Unfortunate).**—There is no natural solution for such a case as yours. By fault, or vice, or mismanagement, the eggs are spoiled. The "derelict of affinity" have nothing to do with it. Hard frosts may have something to do with the failure. Have you examined the eggs? If, after sitting, there is no change in the state of the eggs, they are clear; they are not impregnated. If there is a dead chicken, the trouble is that the first egg being left too dry, the chickens have died in the shell. They cannot be all bad.

**POINTS OF FILE GAME BASTARD (J. L.).**—There is no positive rule for File Game. The general rule have body ground colour, white; hackle, red or nearly so; and the same; sickle feathers made up of the same colour and a stained red. The red is not a rule, but a mark. Yet we must bear much longer travelling without injury. We believe the "monster" was the produce of a double-yolked egg. We differ from you. We believe it was a good fortune, not a misfortune, that it was killed during or soon after the first storm.

**KEEPING DORINGS AND GAME FOWLS TOGETHER (N. P.).**—You take up a large position when you say autumn or spring. It extends from the middle of August till the 1st of May. You may easily run all your fowls together from this time till November, provided you do not set any eggs till February. If you mean to set in January, you should separate the fowls in October. If you are not particular, run the risk. No bird will do your Dorings so little injury as a Game cock.

**LARGEMOUTH POISONOUS (Fancy).**—We know that both the seeds and flowers of the Laburnum are poisonous, and several cases are recorded in our medical books. The active principle is called cytisine, and small doses of it cause vomiting, convulsions, and death. Yet we must not keep chickens from frequenting plantations where Laburnums are growing, for we do not think that they would eat the fallen flowers, and if they did the small decimal of a grain of cytisine in them would not be injurious.

**TRANSFERRING BEES (J. W. W.).**—Your best plan will be to permit the stock to swarm naturally in the usual way, then three weeks after the issue of the first swarm expel the remaining bees by driving, and add them to the second swarm. If managed in this way no brood will be sacrificed. Examine the half-dozen colonies, and before putting the bees into it remove any drone combs that may have been built therein. Glasses should be put on when a hive first becomes crowded with bees, either in April or May, or even later, according to the season and the condition of the stock.

**BEES DYSPEPTIC (B.).**—The hive being a moveable-comb one, should be examined in order that the cause of the mischief may be ascertained and the proper remedy applied. If the transverse notched-bar remains at the bottom, first turn the hive up and remove it, and then take out the combs from the top in the usual way. The bees cannot possibly have fired the frame so tightly as to cause more than a slight difficulty in doing this. If the stock should have dwindled away simply from the loss of its queen, and is in all other respects healthy, it may be restored by the addition of a swarm as you propose; if, on the other hand, it is infected by foul brood, the remaining bees should be taken out, the combs drained and melted down, keeping the whole out of the reach of other bees, and the hive itself, after having been scraped out, should be well washed in a saturated solution of chloride of lime and laid by for a few days. A slight boiling-water bath will be unimpaired.

**HEAT FURNISH (S. G.).**—Wash, and shave, and pinch, beat, pare, and leech, of each a handful; have ready a quart of grog previously soaked in warm water for half an hour; cut 1 lb. of hog's lard and three onions into dice, and mince three sage leaves; mix all these ingredients, add a little salt, and then up closely in a cloth. Whilst boiling, the string must be loosened to allow the pudding to swell.

### COVENT GARDEN MARKET.—MAY 25.

BUTTER is somewhat better and prices maintained, although our supplies have largely increased during the week, buthouse produce becoming very plentiful, comprising Grapes, Pines, Peaches and Nectarines, Cherries, Plums, and Apples. Large arrivals of new Potatoes from Lieben, 12s. to 16s. per cwt.

#### FRUIT.

	s.	d.		s.	d.		s.	d.
Apples.....	1	0	6	Bulberries.....	0	0	0	0
Apricots.....	2	0	0	Nectarines.....	0	15	0	0
Cherries.....	1	0	0	Oranges.....	1	10	0	0
Currents.....	1	0	0	Pears.....	0	0	0	0
Black.....	0	0	0	Pear, Kitchen.....	0	4	0	0
Red.....	0	0	0	Peas.....	0	0	0	0
Figs.....	0	0	0	Plums.....	0	0	0	0
Fiberis.....	1	0	0	Plooms.....	1	15	0	0
Cobs.....	1	0	0	Quinces.....	0	0	0	0
Grapes.....	0	0	0	Raspberries.....	0	0	0	0
Grapes, Hothouse.....	1	0	0	Strawberries.....	1	0	0	0
Lemons.....	1	0	0	Walnuts.....	1	10	0	0
Melons.....	0	0	0	do.....	1	10	0	0

#### VEGETABLES.

	s.	d.		s.	d.		s.	d.
Artichokes.....	0	0	0	Leeks.....	0	10	0	0
Asparagus.....	0	0	0	Mushrooms.....	0	1	0	0
Beans, Kidney.....	0	0	0	Mustard & Cress.....	0	0	0	0
Broccoli.....	0	0	0	Onions.....	0	0	0	0
Brussels Sprouts.....	1	0	0	Parsnips.....	0	0	0	0
Cabbage.....	0	0	0	Peas.....	0	0	0	0
Capicums.....	1	0	0	Potatoes.....	1	10	0	0
Carrots.....	0	0	0	Radishes.....	0	0	0	0
Cauliflower.....	0	0	0	Rhubarb.....	0	0	0	0
Celery.....	1	0	0	Salsifis.....	0	0	0	0
Coleworts.....	0	0	0	Shallots.....	0	0	0	0
Cress.....	0	0	0	Sprouts.....	0	0	0	0
Endive.....	0	0	0	Tomatoes.....	0	0	0	0
Fennel.....	0	0	0	Turnips.....	0	0	0	0
Garlic.....	0	0	0	Watercress.....	0	0	0	0
Herbs.....	0	0	0	do.....	0	0	0	0
Horseradish.....	0	0	0					

## WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 2-8, 1870.	Average Temperature near London.		Rain in last 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. a.
2	TH	Meeting of Linnean Society, 8 P.M.	68.9	45.1	57.9	19	51 af 3	5 af 8	13 af 6	5 af 10	3	2 21
3	F	Manchester Horticultural Show.	69.4	44.2	56.8	21	50	6	8	13	7	35 11
4	SUN	WHIT SUNDAY.	70.5	47.3	58.9	15	50	3	7	8	23	8 morn.
5	M	Meeting of Entomological Society, 7 P.M.	69.9	47.6	58.8	24	49	3	8	8	35	9 8 0
6	TU	Royal Horticultural Society, Show, and (Fruit, Floral, and General Meeting.	69.3	46.5	57.9	25	47	3	10	8	after.	2 1 8
7	W		70.6	46.4	58.5	15	47	3	11	8	27	1 25 1
8												9 1 18

From observations taken near London during the last forty-three years, the average day temperature of the week is 69.7; and its night temperature 53.3. The greatest heat was 90, on the 5th, 1846; and the lowest cold 33, on the 5th, 1836. The greatest fall of rain was 1.02 inch.

## QUESTIONS FOR GRAPE-GROWERS.



DO NOT bother us," you will be ready to say. "What can you say that is new about Grapes and Grape-growing?" Well, with your kind permission, I was only going to ask a few simple questions, hoping to receive an answer to each that will settle the matter in my mind.

In the first place, why do most Grape-growers recommend us to encourage our young Vines to "run" as far up the roof as possible the first season? and why do they recommend us to prune them down again in autumn to within 4 or 5 feet of the ground? I have seen men in their enthusiasm not satisfied with the length of the rafter for a leading shoot, but who have actually had the latter trained along the top of the house or down the back wall the second and third seasons. I have likewise seen the same men, with one stroke of the pruning-knife, in autumn remove as much as 8 or 10 feet of those rambling leading shoots. Now, what need is there for this? The Vine is not grown to supply the wants of the wood-merchant's yard? Why, then, allow it to produce so much more wood than is really necessary? It is very pleasant, certainly, for anyone to see his Vines growing and covering the whole roof of a house in a summer, and to think of their having fibrous roots as thick as goose quills; but I am afraid that in nine out of ten such cases these roots will be more difficult to find in April than in November. If this is the case, where is the cultivator's profit in producing such roots? and if it is not the case, why does he cut his rods so far back? Has he not roots enough to supply food for double the length of the rod he leaves?

Now, I am but a young man, and what I have said, and what I am about to say, may be all wrong; but instead of allowing Vines to grow at will the first year, stop them at 3, 5, or 7 feet, according to their strength (the first length for the weak and the last for the very strong), and stop the laterals at the first leaf, continuing to do so during the summer every time they push afresh, and what would be the result? I imagine so much good, well-ripened cane, with buds like nuts at the base of each lateral. This, however, is only fancy, and I may be wrong. At the autumn pruning only cut them back 18 inches or 2 feet; and in each succeeding summer allow the leading shoot to run no more than 4 or 5 feet, keep them under the same restraint as before, and only prune a foot or so off them in autumn.

"What next shall we hear of?" inquires one. Whether it is preferable to have 8 feet of a "spindle-shank" rod, or 4 feet of thick well-ripened wood? Whether it is preferable to have a great quantity of succulent roots, which, ten to one, will perish during the winter, or sound fibrous roots in proportion to the cane, as it is left after the autumn pruning? I think it is almost universally acknowledged that Vines give the greatest satisfaction during the first five or six years of their existence; might not this period of success be extended to ten or

twelve years by taking the filling of the rafters in shorter stages?

I think few will deny the propriety of summer pruning, as practised on fruit trees, as a means of balancing the root and branch-action: why might it not be tried on the Grape Vine to a certain extent? We have heard much of "extension" and "restriction" in the old age of Vines; has anyone ever tried to restrict them in their youth? If so, I shall be much obliged by experiences, and perhaps these may not be unprofitable to the readers of "our Journal."—R. J. P. P.

[There is much in what you say, if immediate fruitfulness is the object contemplated. We once grew Vines rather largely in pots, and then we adopted the practice you recommend. As soon as the Vines were from 3 to 4 feet long we nipped out the point, which encouraged the free emission of laterals, and these we allowed to grow even more than you speak of, on the principle that the more extended the side branches the stouter would be the trunk, though that trunk might be shorter, as the trunk of an Oak in a park, however far-spreading its branches, may have a sturdy stem, but it is seldom so straight or so long as that of a tree drawn up in a thicket. Our chief object in the stopping referred to was, by means of the free growth of the laterals "near home," to increase first the size of the main stem, and then by the gradual removal of these laterals in the autumn to secure the thorough ripeness of the wood and the buds. When a good crop was taken the following season from such plants, the best place for the Vines to go to after perfecting their crop was the burning or charcoal heap. Such Vines bearing heavily would not be nearly so useful afterwards as young Vines.

The same system might be adopted with Vines intended to fill a house for a generation or so, but if the Vines are young we should at first be inclined to let them grow more freely—first because the more head growth, the more would be the root growth; and as the first season after planting the Vines make wood only, it is advisable that the roots should be considerably in advance of the tops, so that in future these roots shall not support wood only, but also wood and fruit. Our second reason would be because short stopping and encouraging laterals will not make the great difference in the quality of the roots you suppose. Thirdly, because it is good practice to take but little fruit the second season after planting, and therefore concentrating the powers of the Vine near home is not of so much importance as securing abundant root-action. In our own practice, and as observed in that of many others, we have seen fine well-ripened wood made the first season, and from that we have taken, and seen others take, a good crop the second season after planting, but we never did so without regretting it, as the Vines were paralysed for years afterwards. In fact, fruiting a young planted-out Vine heavily has much the same effect upon it as fruiting heavily a young Vine in a pot. The first heavy crop from a young Vine paralyses it for future effort. It is the best and the most profitable in the long run to take from a Vine but little the second season after planting. The more roots

the Vines make before bearing, the better will they stand bearing fruit.

However, we agree with you so far, that Vine shoots rambling in shade can do little to improve root-action. Also, as the young shoot grows, it is important to encourage laterals, and these in a healthy shoot will generally appear without stopping the shoot so short as you recommend; and if these laterals appear and are encouraged, the main stem will not lengthen so freely, and the base of that stem will be the thickest and the best.

Had we a young Vine coming away pretty freely, and yet not making 3 joints at the joints, we should certainly nip out the point; you suggest, say 4 feet from the base, and the check to mere extension at the point would cause the laterals to be produced freely; but whilst we would let the laterals grow two or three joints before stopping, we would also let the leading shoot that was formed after stopping go on again for several feet without stopping, to encourage free root-action, as we never yet found we had too much of that in any case.

We consider that your remarks may lead some to think that something else than mere length of stem is required, and we greatly approve of the thought and consideration of the subject that your letter unfolds; but in our opinion so important is free root-action at first, that after, in the modes stated above, securing the best well-ripened wood near the base of young Vines, we would do as much as we could to promote free root-action. We never found the roots of Vines more fibrous from keeping the tops when young in small compass. Were we planting young Vines now, we would encourage free lateral growth from the base, and be only concerned to remove that growth gradually in autumn when the thorough ripening of the wood became of more consequence than its mere size. Thus, if we had three joints to some laterals, we would first shorten to two, then to one, and ultimately leave nothing but the large leaf at the bud; but if, as stated above, we nipped out the point of the leader to encourage laterals, we would let a new leader grow again to encourage free root-action.

We shall be glad to have the opinions of others on this interesting subject. We will not enter on the extension and restriction system, farther than to say that if we thoroughly believed in the former we would at first act on the restriction system until we filled the house by degrees. In several cases we must own we have been disappointed when removing, perhaps, the half of the top of a Vine, expecting what was left to do better, but it did not do so. As to a few years' bearing, we have Vines now that we wish to give fresh borders to or transplant, that have produced heavily, though not so large bunches as we should like, for from thirty-five to forty years, and we might have done what we liked with them if rats had not stripped and gnawed the stems. Encouraging free rooting the first, or even second, season after planting, will not, therefore, cause the bearing powers of the Vine to be so much sooner exhausted. Here, as in most cases, the middle path is the safest and most profitable, and our correspondent's remarks may lead many to choose that path of safety and profit. It will at once be seen that the curtailed system of growth that may be best for quick fruiting, may not be equally applicable to Vines that are expected to fruit for a great many years.]

### CHOROZEMA CORDATUM SPLENDENS CULTURE.

CULTIVATORS would derive greater benefit from their labours if they were to pay more attention to the choice of subjects in beginning to grow plants. I have been led to think so from inspecting a fine and vigorous specimen of this plant, and I have thought that service might be rendered by my writing a paper on it.

*Chorozema cordatum* is one of the most beautiful of all the early-flowering New Holland plants, and valuable for either large or small specimens. It is a free grower, developing shoots fully 3 feet long in one season. These should be regulated and tied so as to give the plant the desired shape. I have seen very handsome specimens grown as pyramids by bending and tying the shoots properly—first one to a good central stake, then the rest to each other in turn, as they best suited, till, when finished, they formed, without stiffeners, a firm whole with only one support. Very good plants can be produced by the second or third year either from seed or cuttings. It makes an excellent conservatory plant.

The plant before referred to is fully 4 feet across, by 51 feet

high. It has been flowering for about two months, since the first week in February, and is nearly a mass of beautiful orange and brown blossom. It grows in a soil consisting of about equal parts of turfy loam and peat, with a small proportion of silver sand and broken crocks mixed well together, and made firm. Its age is a little over three years, and it is trained on a Pear-shaped trellis, which it plentifully covers. I do not think it has been shifted or potted more than three or four times, and the pot it is now growing in measures about 20 inches across. Common treatment as a hardy plant is all it has ever been subjected to. It has been kept in a conservatory all the year round, except for a few weeks in summer, when it was placed out of doors in a sheltered part of the garden among other greenhouse plants. Sometimes it may be attacked by red spider, but the insects can be removed easily by a free use of the syringe. Treated as a conservatory plant, with ordinary care, and with a short period out of doors in summer to ripen the wood, it succeeds well, and produces a most charming effect in spring.—R. M.

### THE FIG AND ITS CULTURE.—No. 6.

**TOP-DRESSING.**—Trees in pots, especially those which are somewhat potbound and bearing heavy crops of fruit, should, after they are in active growth and the first crop of fruit fairly set, have a liberal top-dressing of some rich compost; one half horse droppings, and the other half fresh loam, with a mixture of burnt ashes and charcoal, I have found to answer well. The roots will soon be seen rising and spreading through this like great white threads, and when they have become pretty well established and matted another top-dressing should be applied. By placing thin pieces of turf round the edges of the pot, or putting in all round a few little pins, this top-dressing may be raised several inches above the rim of the pot. The Fig, as already stated, is a gross feeder; the roots revel in this rich top-dressing, and immense benefit is thus afforded the plant for the well-being of the fruit.

**MANURES.**—No manures should be applied to Fig trees unless they are potbound or in a very fruitful condition, as manures tend so much to leaf and shoot production, to keep which in subjection we have continually to take measures. Trees in pots, however, bearing an abundant crop, when swelling off their fruit, I have found benefited by a little guano water or liquid manure given once or twice a week.

**WATERING.**—The Fig while in a growing state requires an abundant supply of water at the roots—indeed, when the pots are well drained it is scarcely possible to give too much in this way. Where the trees are very much potbound they are even benefited by placing the pots in shallow pans of water. When the fruits are ripening greater care in watering has to be exercised, as an excess of moisture at the roots then is apt not only to destroy the flavour of the fruits, but to cause them to split open and spoil. As the fruits ripen somewhat in succession, it is difficult to restrict the supply for those just ripening without in some measure injuriously affecting those succeeding, and the plants themselves, being accustomed to so much water, do not relish the want of it. It must, however, be withheld gradually as soon as the fruits show signs of ripening, and no more should be given than is necessary to keep the leaves and plant in a healthy condition if the highest-flavoured fruit are desired.

Trees planted out must be treated in the same manner as far as possible. As soon as the first crop is gathered the trees should again have their liberal supply of water.

**THE FIG HOUSE.**—The Fig is most accommodating, and will grow almost anywhere—in any aspect, and in almost any situation. Although it may grow, and that vigorously, it will not freely bear fruit in any but the best situations, where the trees can have the full and direct influence of the sun. The Fig house, therefore, should be of a light and airy description, for just in proportion as this is the case so will the quality of the fruit and the general result be. Low span-roofed houses are the best of all where there is plenty of light on all sides. There should also be ample means of ventilation, which is so much required when the fruits are ripening. The Fig house should also be heated with hot water to maintain the desired temperature at all times. In general, heating may not be much required, excepting in cold weather and to assist in ripening the late varieties. If the Fig trees are cultivated in pots the house in which they are grown may in winter, whilst the plants are at rest, be used for any other purpose, the plants themselves being removed to some other place where they can be

simply protected from frost. This must be studiously provided against, as the young shoots, if unprotected, are very easily injured by frost. They may be placed in a vinery or orchard house where the frost is just kept out. A very good place to start the Fig trees into growth in spring is the vinery, where they may remain until the Vines have come into full leaf; then, however, they must be removed to where they can have more light, and be more directly under the influence of the sun's rays.

It is an extremely common yet most fallacious notion, that Figs like a shady situation, and that they will succeed on the back walls of houses under the shade of Vines, &c., whereas exactly the contrary is the case. The Fig, although it may grow, will in such situations bear but little fruit. It requires in this respect fully a better exposure than the Vine or Peach, and should be treated accordingly.

**ATMOSPHERIC TEMPERATURE AND VENTILATION.**—Figs while growing delight in a warm, close, humid atmosphere. A warm dry atmosphere is injurious. To start them into growth a great amount of heat is not required or desirable. A temperature of 50° by night will be amply sufficient, or even less. This may be increased as the season advances. They will, of course, stand a much higher temperature if it is required to have the fruits ripe earlier. During the summer very little fire heat will be required, except in cold wet days and occasionally at night. By day, if by sun heat, the temperature of the Fig house whilst the trees are growing may be allowed to rise to 90° or 100°, or even higher, keeping the atmosphere very moist by syringing all over the plants, also the paths, &c.—indeed, keeping the house perfectly saturated with moisture at all times. The brighter the sunshine the oftener should the plants be syringed. It is wonderful how the plants grow and revel in a warm and close saturated atmosphere like this, and it has further the effect of keeping red spider, the great scourge of Figs in a dry atmosphere, completely in subjection. Little air need be given at this stage, but when admitted shut up early in the afternoon, so as to avoid the necessity of fire heat during the night. It is exceedingly important to hu-band, or "bottle up," as much sun heat as possible, as one degree of this is almost worth ten gained by fire heat.

When the fruits begin to ripen, more air should be admitted, and a drier and more bracing atmosphere secured, as by so doing only can highly favoured fruit be obtained. Air should then be given night and day, keeping up the required temperature, if necessary, by the aid of fire heat.—A. B. C.

## THE ORANGE TREE AS A DINNER-TABLE PLANT.

THE gardener from whom I received my first lessons in the profession was a hardworking intelligent Scotchman, and particularly partial to the Orange tree. He used to grow a number of dwarf handsome plants, and fruit them uncommonly well in small pots. He often said they were the most useful plants he could grow, and to my knowledge, they proved to be so, for besides being often required for the decoration of the entrance hall and for placing in small vases under the verandah, they were also among the best and safest plants to pack up and send by railway for similar purposes. A healthy Orange tree, also, was ever a welcome addition to any collection of plants.

The Otabeite and the Myrtle-leaved were the varieties grown; and dinner-table plants being now so much in request, I think as the above varieties are so very suitable and distinct, they should be more grown for the purpose. I have sometimes met with a batch of the former variety, but I do not remember ever seeing the latter since that time, except as large plants. Although both sorts are charming on the dinner-table, with their healthy foliage and golden fruit, I like the Myrtle-leaved Orange the better of the two; it can be made a more compact plant, and can be grown in smaller pots. The culture of both is very simple, and can be stated in a few words.

The best way is to purchase small plants, which are not very dear, or they may be raised from cuttings of last year's wood in heat; when rooted pinch off the top of every plant, give them slight shifts as required, and use rich turfy loam, sand, and cow dung. They will grow without bottom heat, but succeed much better with it, especially with dung heat. Cleanliness is another important part of their treatment, and should be particularly attended to in respect to frequently washing the stems and leaves with soft soap and water need warm. To keep the plants dwarf and in suitable-sized pots the drainage must be

often renewed, the old soil taken off, and rich fresh soil added. Manure water may be applied when the trees are in flower and fruit.

When the plants are used for the dinner table, they must never be taken out of the pots.—THOMAS RECORD, *Lillesden*.

## CALCOT.

"Go with me to Calcot to-morrow," was the imperative invitation uttered on the 19th ult. "Where's that?" "Never mind, there's something worth seeing there." Now, there are some persons and some times in whom and in which you feel confiding, and the inviter and the season were congenial on this occasion, so I assented; and the next morning I was at Reading, and thence, staff in hand, strode forth debonairly for Calcot. "How far is it?" "Two miles;" but my friend is a Scotchman, and like his countrymen, whose "mile and a wee bit" has its "bit" as long as its "mile," so on the present occasion the distance was full three miles, and the sun was very hot; but the Hawthorn was in masses of bloom, and the westerly breeze was in our faces, and we kept the step lightly, chanting—

"Marching along, marching along,  
Gardening gentlemen singing this song."

And the road was that noble "Bath Road," which many and many a time, some forty years now gone, I glided over behind those gallant fours, the driver of one of which observed, when the road to Reading was improved, "It is Reading made easy." At length the time "Right shoulders forward" came, and that turning us to the left, we passed through gates left, as I like them to be left, wide open—it seems a welcome; yet there were two big mastiffs, and we were glad to see illustrated, though a little modified, the line, "Chained at the gate two canine demons dwell;" but then in the Ivy by the gate was a nest of blackbirds, though Cherries were in prospect. Soon after we were introduced to ten more dogs, and then to sixteen cats, fathers and mothers of fourteen kittens, all alive and not doomed to a brick-and-water death. "Their master must be a kindly man," and so we found him—a lover of animal and vegetable life too—a man who does firmly what he thinks has to be done rightly, and the evidence was before us. There was a stone monument bearing this inscription—

"Beneath this stone lies buried  
Our race's deadliest foe;  
Myriads he has hurried  
Down to the realms of woe.  
"More mischief he produces  
Than filled Pandora's box,  
And more disease induces  
Than plagued the Egyptian flocks.  
"Evils attend his reign,  
Yet thousands owe his sway,  
And madly hug the chain  
That drags their souls away.  
"Reader! beware his wiles,  
He lurks within the bowl,  
And stabs you while he smiles.  
Then oh! shun Alcotol!"

The burial took place more than forty years since, and there were on the occasion committed to their grave three hogheads of strong beer, two casks of home-made wine, and some dozens of foreign wines and spirits. After the ceremony a harvest-home supper was provided on the lawn under a tent, when nearly 150 persons sat down to a good substantial meal consisting of a roast sheep, two rounds of beef, barley puddings, and a copper of coffee, after which they listened to a good temperance lecture, and then returned home free from any intoxication. There has not been a drop of alcoholic drink allowed in the house or on the premises since, not even for medicinal purposes, nor has the deed ever been repented of, but, on the contrary, rejoiced over. The high priest of this hecatomb is Mr. R. Webb, a private gentleman, F.R.H.S., and proprietor of Calcot, his birthplace, and so genial and hearty is he, that I think, after drinking a few more pipes of 1847 port wine, that I shall think whether it would not be well to bury the bottles—but they shall be empty.

Calcot includes ten acres, entirely enclosed with a brick wall about 8 feet high, hollow, and with mock chimneys at uniform intervals, justifying a popular comment, "He may well have good crops of fruit, for he warms the walls!" I can only note a few general features within the enclosure. It is especially devoted to fruit-growing, and trees—Pears, Apples, and Plums—all most healthy, and free from disease and moths, are there mostly at judicious distances; but the underwood, for the term

is justified by the abundance, is composed of Nut bushes. These are not bearers of common kinds, but of more than thirteen varieties raised by Mr. Webb and shown by him at the Great Exhibition of 1862. We tasted specimens of their fruit, Cobs as well as Filberts, and, late as the season is, they were all good, but we especially liked those called Eugénie and Garibaldi.

The walls are clothed with Peaches, Apricots, and Plums, all well cropped. But let it not be supposed that Mr. Webb likes to please no other organ than the palate. He loves and cultivates flowers, at least his pets, largely. *Marchal Niel* Rose fills every vacant space upon the walls; but the *Primulaceæ* are his especial favourites, and *Polyanthus* seed is sown broadcast annually all over the orchard. Thousands of plants are encountered as you ramble along, all varying in colour, form, and profusion of bloom; but whenever one of special excellence is born, that, as it deserves, is specially increased. *Primroses*, double yellow, crimson, and hundreds of others were there; a whole quarter of seedling *Crocuses*, and borders a mile in length of *Violet* borders.

Now a few more jottings about the fruit trees. An espalier *Pomerozy Apple* tree is there, 42 feet long, with thirteen branches from the two lateral arms, and each of those thirteen thick as a stem and arching over the walk. A few years since it seemed declining, and Mr. Webb engrafted two of its branches with the *Alexander Apple*, which seems to have reinvigorated the tree. This is another feature of the influence of the scion over the stock; yet it seems not entirely novel, for Dr. Hogg tells me that he knew a similar instance in *Sussex*, where a *Winter Pearmain* was engrafted with a scion of the *Golden Noble*.

Here, too, was an instance of the rare establishing of a *Pear* scion on an *Apple* stock. Mr. Webb has grafted the *Croft Castle Pear* on the *Norfolk Beefing Apple*. It cannot be considered a success, for, though fruit is borne, the scion far exceeds the stock in rapid growth and is unsightly, nor can the union survive many years—canker is apparent at the junction.

The *Nut* bushes are never pruned, but they are of a uniform height of about 10 feet. Last year they produced nearly eight tons of *Nuts*.

Lastly I will note an extraordinary *Black Hamburgh Vine*. Its stem is 2 feet 3 inches in circumference at the ground's surface; it has eight branches.

No. 1 is about 51 feet long, with laterals 9 feet long.	
No. 2 is about 24 " " 10 feet long.	
No. 3 is about 24 " " 7 feet long.	
No. 4 is about 41 " " 7 feet long.	
No. 5 is about 62 " " In a greenhouse.	
No. 6 is about 39 " " In a greenhouse.	
No. 7 is about 30 " " 7 feet laterals.	
No. 8 is about 25 " " 7 feet laterals.	

Thus this *Vine* covers 1539 feet of wall, without including any part of the roof of the greenhouse which it clothes, nor various portions of branches, which, having taken root, are not to be considered as sustained by one stem—they are rooted layers, but unsevered from the parent. The two largest *Vines* mentioned by *Speechley*, are one growing about a century since at *Northallerton*, in *Yorkshire*, and the other at *Bury St. Edmunds*. The first covered 1320 square feet, and the second 1233.—G.

### PELARGONIUM BAYARD.

PERMIT me to say a few words in favour of one of my favourite *Pelargoniums*—viz., *Bayard*. Your correspondent, Mr. Peach (page 301), in his usual vigorous style, says right and left many of our pet varieties, all the *Zonal* *Scarlets*, &c., and "goes in" wholesale for *Nosegays*. I, too, like the *Nosegay* class, and everyone to his taste. As Mr. Peach is so fond of *Nosegays*, I am sorry he should write so slightly of *Bayard*, which is truly one of the best. Mr. Peach writes positively, and assumes to be thoroughly well acquainted with all his subjects. *Bayard*, however, he does not know, or he would not even question its qualities. His experience of it is limited to pot plants, whilst he criticises it as a bedder. Mr. Peach should wait until he proves it good or bad. As for the truss not being so large as *Waltham Seedling*, it is much larger. It is described in the "Proceedings of the Royal Horticultural Society," in the report of 1863, as "Dwarfish and free-growing. Flowers crimson scarlet, in large trusses. First class." And during the past season at *Chiswick*, *Bayard* and *Vesta* were by far the best *Nosegay Pelargoniums* grown, and were the admiration of everybody. *Bayard* is very large in the truss; *Vesta* is rather smaller, and more upright in

growth. I have had two years' acquaintance of *Bayard*. I saw it at *Chiswick* during the past season in the long ribbon border by the side of the main walk, and I liked it, and I thank Mr. Pearson for raising one that is amongst *Pelargoniums* so truly a *Bayard*.—ARCHAMBAUD.

I was glad to see in the *Journal* of May 5th that Mr. Peach speaks more favourably of *Bayard*, and "advises all who can to give it a trial." Having bedded it out the last two years, I can confidently say that it is by far the best of its class here, being a rich crimson and free-bloomer.—A. HENDERSON, *Thoresby Park*.

### MESSRS. VEITCH'S ROYAL EXOTIC NURSERY, CHELSEA.

(Concluded from page 337.)

WITH the *Orchids* the last notice left off, and with these this notice must begin, but no longer the *Orchids* in the general collection, but those in a private one formed by the late head of the firm, occupying several houses, and containing the best varieties of that class of plants with which his name will ever be associated. Many of the specimens are remarkable for their great size and beauty; *Airides Lobbiai*, *Fieldingii*, *Veitchii*, and *Affine*, being particularly fine. Among *Dendrobiums* there is the beautiful white *D. infundibulum*; the white, yellow, and rose-coloured *D. laevis*; *D. Heyneanum*, a very free-flowering white species; and *D. MacArthurii*, one of the finest of the genus. *Odontoglossums*, especially the lovely *O. Alexandræ*, are plentifully represented; so are the *Cattleyas*, of which there is a fine collection; and of *Cypripediums*, the specimen of *C. levigatum* is probably the finest in the country; there is the original plant of *C. Parishii*, and, as might be expected, there is no lack of large specimens of *C. barbatum*, and other well-known kinds. *Epidendrum syringothyrsum*, a lovely species, recently shown by Messrs. Veitch, with racemes not unlike those of a *Lilac*, is one of those plants which well deserves attention from cultivators.

But it would be tedious to go over all the novelties which are to be found in these houses, to enumerate all the fine specimens which are continuously coming into flower; and after passing through propagating houses in which we noticed *Alocasia Sedeni*, a fine new hybrid between *Lowii* and *metallica*, and a whole pitful of *Masdevallias*, with the exception of the splendid *M. Veitchii*, not in flower, we hurry through houses filled with *Azaleas* in various stages, from those in small pots for stock, to specimens coming forward for blooming, *Chorozemas*, *Aphelexes*, *Genetilis*, *Eriostemons*, *Pimeleas*, *Boronias*, *Heaths*, *Liliums*, *Passeifloras* and other climbers, *Pelargoniums* of all sections (including the new *Show*, *Fancy*, *Bronze*, and *Tricolor* varieties), *Coleuses*, *Calceolarias*, succulents, numbers of fine *Camellias*, and *Vines* by the thousand.

Entering the aquarium we find a rich collection of *Pandanus*, *Dracenas*, and *Calsadiums*, together with many *Palms*. Then through houses and pits full of *Gloxinias*, *Achimenes*, *Amarylids*, *Begonias*, *Boronias*, and *Indian Rhododendrons*. Among these were the beautiful white *R. jasminiformis*, and the hybrids *Princess Alexandra* and *Princess Helena*, the latter of a fine rose colour. One house is chiefly filled with *Humus*; and in a stove, besides the brilliant *Anthurium Scherzerianum*, which seems to be serviceable at all seasons, there are *Begonias*, *Croton undulatum* and other fine varieties, *Sanchezia nobilis* variegata, and numerous fine-foliated plants. Several houses are filled with these alone. *Alocasia Lowii* and *Veitchii*, *Maranta illinoensis*, *Veitchii*, and other fine sorts are represented by specimens, many of them of remarkable size. Besides these there are *Dracenas*, the splendid new *Crotons*, such as *variegatum maximum* and *acutifolium*, *Eranthis*, and a host of beautiful-leaved plants. To *Nepenthes* alone one house is mainly devoted. *N. Rafflesiana*, *distillatoria*, and several hybrid kinds exhibit pitchers of a variety of sizes and colours. There is also a fine collection of the *North American Pitcher Plants*, the *Sarracenas*, such as *purpurea*, *Drummondii*, and *flava*. *Araucarias*, such as *Bidwillii*, *excelsa*, and *Cunninghamii* form the main feature in another house; and there are several houses chiefly devoted to *Palms*.

Of *stove Palms* we noticed as the best *Areca Verschaffeltii*, *Calamus asperimus*; *Areca monocostachya*, very distinct as a small tree *Palm*, and having a stem 4 feet high; *Cocos Weddelliana*, one of the most graceful of all *Palms*, and the specimen is probably the finest known; *Enterpe sylvestris*; *Areca*

lutescens; Phœnicophorium seehellarum and Verschaffeltia splendens, two of the most magnificent of all Palms; Geonoma pumila, well suited for table decoration; Geonoma imperialis; Thrinax elegans; Acanthopanax erinifolium; and Welfia regia. Of greenhouse Palms well suited for the decoration of rooms may be noted:—Sabal Blackburnianum, Rhipis humilis, Rhipis flabelliformis foliis variegatis, Scaevola Veitchii, a more delicate-foliaged variety than Scaevola elegans, Corypha australis, Areca sapida, Areca Baueri, Chamaerops excelsa, Chamaerops tomentosa, Phoenix reclinata, and Calamus australis.

The Tree Ferns at the end of the conservatory entrance from the King's Road may just be mentioned, in conclusion, as forming a magnificent forest. Some specimens of Dicksonia antarctica are at least 14 feet high, with stems 16 inches in diameter, and there are noble examples of Cyathea, Alsophila australis, and others.

## MR. W. PAUL'S EXHIBITION OF ROSES AT THE CRYSTAL PALACE.

ON Saturday last was thrown open to the public one of the most charming, most effective displays which we have ever had the opportunity of inspecting. Mr. William Paul, of Waltham Cross, had determined this year to hold an exhibition on his own account, mainly of Roses, and he has carried it out in a way that none but those with similar great resources both of plants and taste could have done; and he has succeeded, though the attempt was a bold one for a man single-handed to fill such an extent as the corridor of the Palace overlooking the terraces and fountains, and which has required about 3000 plants. The whole is arranged so skillfully, is so varied in height, in form, and in colour, that it forms quite a picture.

Passing between lines of the pretty little *Sedum glaucum*; *Echeveria*; *Tricolor*, *Bicolor*, and single and double *Pelargoniums*, interspersed with *Roses*, we are led up in front of a fine bank of *Roses*, edged with *Golden Pyrethrum*. This forms of itself a little exhibition, but it is only a foretaste of the main portion of the exhibition, one end of which now comes in view; and on turning to the right it becomes visible from end to end. Here the staging has curving ends, and forms two wings, with a centre gracefully sweeping outwards, and again bending back to the general line. On this are ranged splendid specimen *Roses*, such as are produced at exhibitions, and studded among them the snowy-white-variegated *Acer Negundo*, *Golden-leaved Oaks*, standard *Roses*, and *Robinia* inermis, with here and there specimen *Ivies* and other plants of lower growth. By these means, and placing the smaller specimen *Roses* among those of greater height, that flatness so frequently complained of, and justly too, at our exhibitions is altogether avoided. In front of the *Roses* in the wings is ranged a row of *Tricolor* and *Bronze Pelargoniums*, placed alternately with *Enonymus radicans* variegatus, while the centre is edged with *Golden Feather Pyrethrum*.

A recess filled with *Roses* intervenes between the first wing and the centre, and is filled with Mr. W. Paul's beautiful new *Rose Princess Christian*; there are likewise several boxes of cut blooms in front of this recess, and also in front of the centre, but the only one we shall signalise is *Maréchal Niel*, which is to be seen in great perfection. Among the large specimen plants, *Madame Alfred de Rougemont* is a mass of white blossom, and of others may be noted fine specimens of *Senster Vaisse*, *Beauty of Waltham*, *Horace Vernet*, *Cécile Forestier*, *Juno*, *Charles Lawson*, *Souvenir d'un Ami*, *Mlle. Marie Raby*, *Madame Willermoz*, *Dr. André*, *Pierre Notting*, *Anna Alexieff*, *Alba rosea*, *Madame Margottin*, and *Paul Ricaut*. Duke of Wellington is particularly bright and effective though the plants are small, and the best of the new *Roses* are also to be seen. *Enonymus flavescens*, a very beautiful golden-leaved variety; *Quercus concordia*, a handsome golden-leaved Oak, together with the variegated *Arundo Donax*, are introduced in places with excellent effect.

After what we have said, need we add, that we heartily commend the exhibition, and advise all who would see it to visit the Crystal Palace on or before Saturday next, when the Show will close? and further, we congratulate Mr. W. Paul on the success which has attended his efforts in producing, unaided, an exhibition chiefly of one flower that can be viewed from end to end without that wearying sense of monotony which too frequently attends such displays. As in war, good generalship and good soldiers win the battle, so in peace—the peaceful

pursuit of horticulture—good taste and good skill united will carry the day.

## PLANTS BLOOMING IN APRIL.

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|---|--|
| April 3. <i>Potentilla alba</i><br><i>Doronicum caucasicum</i><br><i>Adonis vernalis</i><br><i>Auricula alpina</i><br><i>Glechoma hederacea</i><br><i>Helleborus foetidus</i><br><i>Veronica repens</i><br><i>Vicia minor</i><br><i>Alba</i><br><i>Sisyrinchium grandiflorum</i><br><i>Polyanthus Fire King</i><br><i>Double Sweet</i><br><i>Primula domestica</i><br><i>Spirea</i><br><i>Anemone nemorosa</i><br><i>Macropoda</i><br><i>Aubrietia Campbells</i><br><i>Delphinium</i><br><i>Arceuthobium nutans</i><br><i>Ornithogalum nutans</i><br><i>21. Cochlearia officinalis</i><br><i>Acer dasycarpum</i><br><i>Rubrum</i><br><i>Alnus glutinosa</i><br><i>Virus spectabilis</i><br><i>Plum</i><br><i>Cardamine amara</i><br><i>Prunella</i><br><i>Sambucus racemosa</i><br><i>Coronilla Emerus</i><br><i>Draba verna</i><br><i>Azalea</i><br><i>Viola tricolor</i><br><i>lutea</i><br><i>odorata</i><br><i>caerulea</i><br><i>Erica carnea</i><br><i>Salix aquatica</i><br><i>incana</i><br><i>prunoides</i><br><i>triandra</i><br><i>Ficaria verna</i><br><i>ranunculoides plena</i><br><i>Rhodula rosea</i><br><i>Trillium grandiflorum</i><br><i>Berberis dioica</i><br><i>capitata</i><br><i>Cornus mas</i><br><i>florida</i><br><i>23. Cydonia japonica</i><br><i>Buxus sempervirens</i><br><i>Prunus coccinea</i><br><i>Schizoclelea podolica</i><br><i>Mespilus canadensis</i><br><i>Fragaria vesca</i><br><i>Trichonema Columnae</i><br><i>Orubus verna</i><br><i>albus flore-pleno</i><br><i>Luzula campestris</i><br><i>Polygonum ceruleum</i><br><i>Populus nigra salicifolia</i><br><i>Pastinaca</i><br><i>Euphorbia epithymoides</i><br><i>Forysthia viridissima</i><br><i>Myosotis montana</i><br><i>Lamium album</i><br><i>purpureum</i><br><i>Alnus serrulata</i><br><i>Caltha palustris</i><br><i>Berberis cuneifolia</i><br><i>Amelanchier ovalis</i><br><i>Cercus Mahaleb</i><br><i>vulgaris</i><br><i>Forysthia suspensa</i><br><i>Double-blossomed Cherry</i><br><i>Aralia pinnatifida</i><br><i>Populus nigra salicifolia</i><br><i>Prunus spinosa flore-pleno</i><br><i>Rhododendron ponticum</i><br><i>Ribes acutum</i><br><i>Ranunculus aquatilis</i><br><i>heterophyllus</i><br><i>Ulmus campestris tortuosus</i><br><i>glabra pendula</i><br><i>Juniperus communis</i> | April 16. <i>Arabis variegata</i><br><i>hirsuta</i><br><i>lutea</i><br><i>Chrysanthemum alternifolium</i><br><i>oppositifolium</i><br><i>Veronica repens</i><br><i>Vicia minor</i><br><i>Alba</i><br><i>Sisyrinchium grandiflorum</i><br><i>Polyanthus Fire King</i><br><i>Double Sweet</i><br><i>Primula domestica</i><br><i>Spirea</i><br><i>Anemone nemorosa</i><br><i>Macropoda</i><br><i>Aubrietia Campbells</i><br><i>Delphinium</i><br><i>Arceuthobium nutans</i><br><i>Ornithogalum nutans</i><br><i>21. Cochlearia officinalis</i><br><i>Acer dasycarpum</i><br><i>Rubrum</i><br><i>Alnus glutinosa</i><br><i>Virus spectabilis</i><br><i>Plum</i><br><i>Cardamine amara</i><br><i>Prunella</i><br><i>Sambucus racemosa</i><br><i>Coronilla Emerus</i><br><i>Draba verna</i><br><i>Azalea</i><br><i>Viola tricolor</i><br><i>lutea</i><br><i>odorata</i><br><i>caerulea</i><br><i>Erica carnea</i><br><i>Salix aquatica</i><br><i>incana</i><br><i>prunoides</i><br><i>triandra</i><br><i>Ficaria verna</i><br><i>ranunculoides plena</i><br><i>Rhodula rosea</i><br><i>Trillium grandiflorum</i><br><i>Berberis dioica</i><br><i>capitata</i><br><i>Cornus mas</i><br><i>florida</i><br><i>23. Cydonia japonica</i><br><i>Buxus sempervirens</i><br><i>Prunus coccinea</i><br><i>Schizoclelea podolica</i><br><i>Mespilus canadensis</i><br><i>Fragaria vesca</i><br><i>Trichonema Columnae</i><br><i>Orubus verna</i><br><i>albus flore-pleno</i><br><i>Luzula campestris</i><br><i>Polygonum ceruleum</i><br><i>Populus nigra salicifolia</i><br><i>Pastinaca</i><br><i>Euphorbia epithymoides</i><br><i>Forysthia viridissima</i><br><i>Myosotis montana</i><br><i>Lamium album</i><br><i>purpureum</i><br><i>Alnus serrulata</i><br><i>Caltha palustris</i><br><i>Berberis cuneifolia</i><br><i>Amelanchier ovalis</i><br><i>Cercus Mahaleb</i><br><i>vulgaris</i><br><i>Forysthia suspensa</i><br><i>Double-blossomed Cherry</i><br><i>Aralia pinnatifida</i><br><i>Populus nigra salicifolia</i><br><i>Prunus spinosa flore-pleno</i><br><i>Rhododendron ponticum</i><br><i>Ribes acutum</i><br><i>Ranunculus aquatilis</i><br><i>heterophyllus</i><br><i>Ulmus campestris tortuosus</i><br><i>glabra pendula</i><br><i>Juniperus communis</i> |
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—M. H., Aekham Hall, Middlebrough-on-Tees.

## LAWN MOWERS.

I TRUST "ARCHAMBAUD" does not construe the sentence, where I gave a caution to the inexperienced not to be led to purchase any novelty without its first having had a fair and proper trial, into an insinuation of improper motives against him; such I beg to assure him was not and is not my wish; it is his judgment alone that I take exception to. I am much obliged to "ARCHAMBAUD" for the information he so kindly tenders about the low speed of cylinder being wrong, but even in that matter I do not agree with him. I believe it is an unalterable law that great velocity requires great propelling power. The principle is the same whether it is turning a grindstone or the cylinder of a mowing machine; to drive either faster than is requisite to do the work is a waste of motive power.

Since writing my former article I am able to remedy the defect alluded to by "ARCHAMBAUD" of being without practical

experience with respect to the Archimedeian. Having had it in use here, I am now able to give a practical reply to his assertions. I say that the Archimedeian does not possess any of the advantages claimed for it, except not collecting the grass.

First, with regard to the cut of the grass being perfect, it is very imperfect, being ribbed shamefully, as any machine must leave it that, like this, only gives twenty-five cuts per yard. Now this is an important matter touching the quality of work done; in short, the number of cuts the machine gives per yard alone regulates the evenness of cut or freeenes from ribbing. As Green's machine gives about double that number of cuts, it is absurd to compare the qualities of the work done.

Next, as to which machine cuts the grass with the least labour, I say, Green's; of course his machine was constructed to collect the grass, and had not the provision to leave it, as is the manner of the Archimedeian; but at my suggestion, and with a very slight alteration in no way affecting the principle of the machine, it can now in a moment be made either to leave the grass or to collect it. Surely this is an advantage the Archimedeian does not possess; we are, therefore, now able to compare the machines under much the same conditions.

The disadvantage of the Archimedeian is that in long grass, or on croquet grounds, the grass will have to be swept up after the machine, requiring an extra man, or nearly double the time, which I consider is an almost entire loss in such cases. On short grass, where it is not objectionable to leave the cut grass, the machines would compete on more equal terms; still I find that Green's machine takes less power to push it, besides doing its work very much better. One reason is no doubt to be found in the comparative qualities of the cutting blades of the two machines; Green's are made of the best steel, the Archimedeian of common cast iron. I wonder if "ARCHAMBAUD" and others who have spoken in praise of the Archimedeian are aware of the latter fact; if not, I beg to inform them of it, and I hope that they will give their very serious attention to the qualities of the two metals as affecting the durability of the machines. Before I had had the Archimedeian at work three hours I detected very serious snips in both the blades, one an inch long, and, in the worst place, one-eighth of an inch deep; indeed, for that distance the cutting edge was entirely gone. Now, this aroused my suspicion. My employer being the senior partner in the Kirkstall Forge Company, one of the oldest and largest iron works in this neighbourhood, I sent the blade to their works to have its quality tested, and I enclose their manager's report, which says, "The blade is not steel, but cast iron, or annealed cast iron." The foreman smith then also tested it, and he assures me it was a common quality of cast iron, totally unfit for the purpose intended, and that it was simply ridiculous ever to expect to get a cutting edge on it to stand, if ever it should come in contact with anything harder than blades of grass. Surely even "ARCHAMBAUD" will not attempt to assert that cast iron is as good as steel for that purpose. I think that alone sufficiently answers his question of, "How about their lasting capabilities when subjected to ordinary and inexperienced hands?"

I am sorry "ARCHAMBAUD" seems to so vastly underrate the advantages the public derive from competitive trials of such articles as mowing machines; for my part I cannot conceive any other way of fairly testing them. But then, again, he says, "If the Archimedeian has not had any prizes awarded to it in this country, it may be because it has had no opportunity of competition." That it may have that privilege I am authorized on Messrs. Green's account to offer one of their machines to compete against it for any sum of money, or medal, or prize of any kind, or for a penalty to be paid by the unsuccessful to any public institution the Editors of the Journal may name. I also leave the conditions of trial entirely in their hands, the selection of judges, &c.; in short, whatever conditions they lay down I agree to. If they think it necessary first to deposit a sum of money in their hands, if they will only name it, it shall at once be forwarded to them.

I trust, by thus offering a fair public competition to the Archimedeian, to show that I am in earnest in the matter, and I deny entirely "ARCHAMBAUD'S" assertion, that with the Archimedeian a man can cut double the extent in the same time that he can with any other machine.—ROBT. FEATHERSTONE, *The Gardens, St. Ann's Villa, Bury, Leeds.*

### PEAT SOIL.

NEVER keep this by you too long before using it, or in other words procure no more peat soil than you are likely to want in

a season. Many persons who cannot think why their Azaleas, Ferns, &c., do not grow to their satisfaction, will find that the plants have been potted in peat soil that has been long kept before using. Advice of this kind may appear very unnecessary to many good cultivators; but I know much disappointment arises from this cause. Many of the readers of "our Journal" know I have always advocated fresh-cut turf for potting; newly-cut peat is quite as desirable.—J. R. PEARSON, *Chitwell.*

### THE FRENCH HORTICULTURAL EXHIBITION.

THE Imperial and Central Horticultural Society of France opened its yearly general exhibition on Friday, May 27th, at the Palais de l'Industrie, Champs-Elysees, Paris. The horticultural products remained on view till yesterday (June 1-13), but the objects of art and industry employed in horticulture are to remain till the 20th.

The fact of the Exhibition being held under the auspices of this the first Society of France would appear to be a sufficient guarantee of the best productions of the country being brought together; if such is the case, in the present instance it is to be feared that any English person in the habit of visiting good shows in his own country would be unfavourably impressed with the great Show of the season.

A great many plants are brought together, representing the various departments of horticulture, but, excepting in three or four they are not of a high standard. These comprise Palms, Cacti, Agaves, Aloes, Euphorbias, annual, biennial, and perennial plants (hardy), and Caladiums. These were very good, but the rest were quite secondary. That which makes French shows so attractive is the tasteful arrangement, which renders it quite refreshing and agreeable to attend them; for while the heat is suffocating outside, the cool air that pervades the interior, with numberless seats invitingly placed, brings the company from far and wide to attend them. This mode of arrangement is very well for the above reasons, but as regards the finding of the classes, and the facility of comparing one lot with another, it becomes embarrassing.

The plants are placed on, or plunged in, raised banks about a foot high and a yard wide, with nearly perpendicular turfed sides, arranged in one, two, or three rows, according to the size and nature of the plants; every now and then, at equal distances, the bank is enlarged behind, and Conifers of various sorts are planted in baskets, large specimen plants from 12 to 15 feet high being supplied by one or two undersmews. These trees add very much to the agreeable effect produced. All the plants are arranged in groups of no stated number, as sometimes a group may contain two hundred plants, at another time not more than half a dozen. There are no schedules nor catalogues to be had, therefore for a stranger it is difficult to know where one group ends and another commences, unless they are composed of a different class of plants.

On entering the first day with the impression of seeing what awards are given, and to whom, you will be not a little surprised to find groups of gentlemen here and there, with pencils, paper, and lighted cigars, amusing themselves now and then in holding up hands when called upon to award an anxious exhibitor, who is looking on, a medal of one sort or another. These gentlemen are the Judges. A number is placed to each group or single plant, and that is all that is left from their visit the first day. Those, therefore, who require to know the awards must come again next day, as the gentlemen will not have finished till late on the first day. At ten o'clock on the second day the Show is opened, and on entering the first thing to be noticed is two men commencing to place cards with the name of the medal awarded, and the person's name only; if that person has placed his card or catalogue with his address, all well and good, if not, so much the worse for him. No tickets are placed with the classes, nor anything further.

In a pamphlet sent to the members of the Society at the commencement of the year, inviting them to take part in the Exhibition, it is stated to comprise newly introduced vegetables, flowering and other plants for in-doors or out-doors cultivation; seedling plants of vegetables, fruits, or flowers, &c.; vegetables in season or forced; forced or preserved fruits; stove and greenhouse plants; hardy deciduous and evergreen plants; herbaceous plants and annuals; and, lastly, bouquets and table decorations. The recompenses offered to those who were successful in their exhibitions would be in medals—gold, silver-gilt, silver, and bronze. These medals are the following according to their value, commencing with two large gold medals of honour given by the Emperor and Empress; one gold medal of honour given by the Prince Imperial; two large gold medals of honour given by the Princess Clotilde and Princess Mathilde; large gold medals of honour given by eminent persons; one large gold medal given by lady patronesses; one large gold medal given by Marshal Vaillant, President of the Society; medals from the Society—gold, silver-gilt, large and small silver, and bronze. At all French exhibitions the awards are given in medals, not in money.

The large gold medal, given by His Imperial Majesty, was awarded to M. Chantio, horticulteur, Route de Chatillon, 32, a Paris, for the finest collection of stove plants, consisting of splendid specimen Palms, Tree Ferns, Cycads, Dracenas, three enormous plants of *Cynophyllum magnificum*, a few Orchids, and Alocasias; altogether fine, healthy, well-grown plants, and which added considerably towards filling up



An eleventh large silver medal was awarded to M. Chaté for a new *Pelargonium* not named, having the habit and character of *Gloire de Paris* (this last truly named), but the colour, instead of being scarlet, is of an intense bright lake, extra showy.

A twelfth silver medal was awarded to M. Durand, horticulteur, Bourg-la-Reine, for a collection of hardy Ferns, very clean and healthy, though not large, the best labelled plants in the Exhibition. Also to the same person a thirteenth large silver medal for a beautiful collection of *Violes*, very good.

A fourteenth large silver medal was awarded to M. Telloite, 19, Rue Pascal, Paris, for a very large collection of medicinal plants.

A fifteenth large silver medal was awarded to M. Grand Jean for a group of stove and greenhouse plants, small but very healthy, and well selected.

A sixteenth large silver medal was awarded to M. Chevet for a beautiful group of *Vinca alba* and *rosa*, well flowered and healthy.

A seventeenth large silver medal was awarded to M. Batillard, horticulteur-décorateur, Bourgogne (Seine), for a collection of *Pansies* not named; healthy, well-flowered plants.

An eighteenth large silver medal was awarded to M. Yvon, horticulteur, Rue de Chatillon, 20 (Montreuil), Paris, for a good collection of herbaceous hardy plants very well selected.

A silver medal was awarded to Mr. Walter H. Hitchcock for four dishes of Grapes. The varieties were Muscat of Alexandria, Bwood Muscat, Josting's St. Albans [Chasselas Musqué], and Black Burgundy; the Muscats were not ripe, and the bloom was destroyed. They were placed on dishes with artificial Vine leaves.

A second silver medal was awarded to M. Eugène Girardin, cultivateur, Argenteuil, for one bundle of very large Asparagus. The same person also exhibited a Fig tree in a case, the variety being called *Figue rouge Dauphine d'Argenteuil*. It was stated to be from out of doors, but appeared like a plant that is kept in the house in winter and put out in spring. It had a few leaves and a few Figs on the tips of the branches, and I rather wonder how such an unsightly object was allowed in the Palais, for although there were a few autumn and fewer spring Figs on the points of the same branches, it showed nothing contrary to the rule of nature.

A third silver medal was awarded to M. Duvisier, grenier-floriste, 2, Quai de la Mégisserie, Paris, for a splendid collection of *Pyrethrums*, double, in twenty-four varieties, all in pots. They were really well worthy of the prize.

A fourth silver medal was awarded to M. Grand Jean for a group of herbaceous *Calceolarias*, very well grown and healthy, but not large.

A fifth silver medal was awarded to M. Creste for a mass of large-flowered *Mignonette*, with a card stating that seed of the same variety could be obtained for one franc per packet by applying to the catalogue-seller at the entrance.

A sixth silver medal was awarded to M. Larssonier, Rue des Capucines, Chartres, for a seedling *Pelargonium* named *Engne Larssonier*, a French spotted variety of robust habit, very free-flowering, and undoubtedly good.

A seventh silver medal was awarded to M. Vautrin-Narcisse, Rueil (Seine et Oise), for a group of *Pansies*, well flowered but unnamed like all the others.

An eighth silver medal was awarded to M. Dufloy for a group consisting of dwarf *Dahlias* flowering in 48-pots, and about a foot high.

A ninth silver medal was awarded to M. Louvet for *Pelargoniums*, well flowered, but, like all the others, not large and not sticky.

A tenth silver medal was awarded to M. Sourain for a group of *Fuchsias*, very healthy, half dwarf and half pyramid plants, but not large, and very little variety.

An eleventh silver medal was awarded to M. Yvon for a beautiful collection of named *Irises*, very good indeed.

A twelfth silver medal was awarded to M. Giroux for three enormous plants of *Chrysanthemum frutescens* in full flower. This is a plant much used for beds and borders where white flowers are required; it is very free-flowering. It is called in France the *Antémis*.

A thirteenth silver medal was awarded to M. Chevalier aîné, arboriculteur, Montreuil (Seine), for a group consisting of a basket containing a pyramid of Calville Blanche Apple and Pomo d'Api Rose, with various branches of Peach trees showing the manner of pruning and disabbing, and also the thinning of the fruit, &c. He is one of the Montreuil Peach growers noted for the cultivation of the Peach.

A fourteenth silver medal was awarded to A. Bernard, fleuriste, Rue Lafayette, 7, Paris for a very interesting group of plants composed of one large specimen *Arancaria excelsa* and various small ones; A. glauca, *Apollidra variegata*, *Chamaecyparis humilis*, *Drosera indivisa* and *lineata*, surrounded with *Rhizoma fulgens*, *Nidularium splendens*, and *Bilbergia pyramidalis*.

A fifteenth silver medal was awarded to M. Goutier, successor to the Maison "Guenot," Paris, for a very nice collection of annuals, biennials, and perennials, also an award of a bronze medal for a collection of very good *Irises*.

A second bronze medal was awarded to M. Yvon for a good collection of herbaceous plants in flower.

A third bronze medal was awarded to M. Durand, jun., for a collection of *Aucubas*, in about thirty varieties.

A fourth bronze medal went to M. Chaté for a collection of double and single *Petunias*; although there was variety, the plants were badly grown.

A fifth bronze medal was awarded to M. Plateau for a collection of herbaceous *Calceolarias*, well bloomed, but small.

A sixth bronze medal was awarded to M. Hornet, horticulteur, 21, Rue St. Blaise, Paris, for a collection of forty-eight varieties of double-flowered *Pelargoniums*; *Triomphe Lemoine*, *Marie Lemoine*, and *Gloire de Nancy* are the best three, the others are merely shades between them. One new variety amongst them may be a step in the right direction to get quite another and distinct shade; it is called *Victoire de Lyon*, and is of a purplish crimson colour.

A seventh bronze medal was awarded to M. Charbonnier, Arignon, for one box of Green Almonds, and one box of Bigarreau Cherries from the open air of Algeria. Two boxes of *Cinchona* plants were exhibited, but it was not stated from whom or where. They ranged from 3 to 12 inches high, and consisted of four kinds.

One collection I have passed till now in the medals of honour; it is this—A gold medal of honour, given by the city of Paris, was awarded to M. Van Acker, horticulteur, Rue d'Orange (Seine-et-Oise), for a very nice collection of dwarf standard specimen *Azaleas*. The plants were well flowered and in good order though small. In very few instances were the addresses of the exhibitors given.—A.N.S.

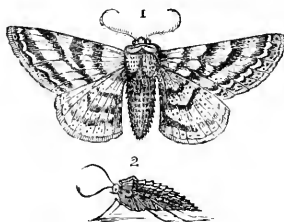
## INSECTS INJURIOUS TO THE PEAR TREE.

No. 2.

AMPHIDIAS PILOSARIA, PHIGALIA PILOSARIA, GEOMETRA PILOSARIA, GEOMETRA PILINARIA, GEOMETRA PEDARIA, PHELENA PEDARIA, BISTON PEDARIA, GEOMETRA HYEMARIA.

ENTOMOLOGISTS have described by the preceding eight names one and the same moth, popularly known as the Pale-brindled Beauty.

The male moth (*fig. 1*), appears in February and early in March. The extended fore wings are fully  $1\frac{1}{2}$  inch from tip to tip. They are greenish grey, with four wavy dusky lines, with whitish spots between, and brownish spots sprinkled over the whole. The under wings almost white, but banded as in our figure. All the wings are fringed. Antennae, or horns, feathery.



Thorax downy. The female (*fig. 2*), quite wingless, dusky brown, with a white line along the back, and having angular-placed tufts of hair. Feet long, with alternate circles of white and brown.

Kollar thus notes the proceedings of the female:—"As soon as pairing is over, in March, the female seeks out a small side twig of the fruit tree, scarcely as thick as the quill of a pen, on a high tree if possible, and deposits her eggs round it in the same manner as the lackey-moth, *Cliocampa neustria*, in rows downwards, and covers them with long grey hairs. From seven to ten eggs lie in each row, and more than twenty rows are in each ring. This ring is rather broader on one side than the other, and looks pointed. The female requires several days to deposit all her eggs. As soon as the leaves begin to unfold on the twigs, the young caterpillars are hatched."

They are variously marked with brown, yellow, and black, the head, legs, and tail being red-rust colour. Small protuberances with a tuft of hair on their annuli are on the back of their fifth, sixth, seventh, and twelfth segments. They are found on the Pear tree, more rarely on the Apple, but frequently on the Oak. They are hatched in May and June. They descend into the soil near the tree, and there pass into the chrysalis state.

## MR. B. S. WILLIAMS'S VICTORIA NURSERY.

As a very full report of this nursery was given last year at the end of October (see pages 340-341), many subjects even more ornamental now than then may be passed over; but there are some, such as the beautiful *Cochlostoma Jacobianum*, the still more beautiful *Tillandsia Lindeniana*, and other new plants, which have a special interest at the present moment,

besides many Orchids in flower, or coming into flower, and a brilliant display of Azaleas and other stove and greenhouse plants. Added to these there are the Ferns, ever graceful, with their young fronds of the brightest of green, vari-coloured foliage plants, and a fine collection of Palms.

The show-house, except in the greater abundance of plants in flower, such as Azaleas, Eriostemons, Amarylids, and Pelargoniums, presents much the same appearance as it usually does. The large Dicksonias, having made a new growth, have had the fronds tied down, so as to form umbrella-like heads. Cibotium princeps, one of the noblest of all Ferns in a conservatory, is also conspicuous. Among the numerous Agaves, Yuccas, and Beaucarneas, there are A. Verschaffelti and several other new kinds, and associated with these the Australasian Grass Plant, *Xanthorrhoea hastilis*, or *Kingia australis*, which is of remarkably slow growth, and is interesting from the numerous uses to which it is applied by the aborigines. Another Australian, *Banksia speciosa*, long ago introduced into this country, is a pretty table plant in a young state.

In the next house, a stove, there is a large number of young Palms for room and table-decoration, purposes for which they are very extensively employed on the Continent. The taste for them appears to be rapidly extending in this country, and we venture to predict will go on increasing as the beauty and endurance of young specimens become better appreciated, and as their cost becomes low enough to place them within the reach of those of moderate means. The principal genera represented in this collection are *Chamaedorea*, *Hyophorbe*, *Marattia*, *Geonoma*, *Areca*, *Calamus*, *Thrinax*, *Martinezia*, *Livistonia*, *Phoenix*, and the new *Wellia regia*. More stately than these are fine specimens of two of the noblest of all Palms, and bearing considerable resemblance to each other, *Phenicochlophorum sechellarum* and *Verschaffeltia splendida*. The latter, however, makes a crown of roots at the base of the stem, whilst the former acquires a stout stem with age. *Dion edule* is making a fine growth, and among other Palms may be mentioned *Corypha australis*, one of the best for subtropical gardens. *Anthurium acule*, which is fruiting, is another plant, which is very effective for the same purpose.

Another stove contains numerous plants in flower, as *Clerodendrons*, *Anthurium Scherzerianum*, of which several fine specimens are to be met with in the different houses, *Medinilla magnifica*, *Cochlostoma Jacobianum*, so often alluded to of late, and a large number of young Palms on the shelves.

Next we enter the fernery, in which *Lomaria gibba crispata* is noticeable as making a dense mass; and several species of *Lindsaea*, nice specimens of *Cibotium spectabile* and *regale*, and a peculiar variety of *Pteris serrulata*, called *corymbifera*, are well worthy of attention. Passing onwards we come to the New Holland house, now chiefly filled with Azaleas being forwarded for exhibition. Of the other plants, *Dracena congesta* is worthy of notice as being a very hardy kind suitable for Wardian cases and windows; and it is much grown in Prussia, where, notwithstanding the severity of the winters, it does well. *Tinnia aethiopica*, though not showy, may be noted as having a slight scent of Violets.

Then come the Orchid houses, containing extensive collections of all that is good, as well as new. Among *Cypripediums* are fine specimens of *villosum*, *barbatum superbum*, and *canadatum*. *Vandas* are numerous; *Acridies* have already many long racemes, and some of them will shortly be remarkable specimens; *Dendrobiums* and *Cattleyas* will shortly be splendid, and some are so already—to wit, *Dendrobium densiflorum* and noble, and *Cattleya Moesii* and *Skinneri*. *Laelias*, too, as *purpurata*, and *Odontoglossums*, as *Alexandra* and *Pescatorei*, are lovely; then there are the old but fine-flowering *Maxillaria Harrisoniae*, *M. leptocarpa* with ochreous yellow and white sepals and petals, the new *Miltonia festiva*, *Oncidium obryzatum* which is nearly always in bloom, and many others. There is also a *Pogonia*, supposed to be new, from Java, somewhat resembling *P. bicolor*, but richer-coloured. In the compartments at the ends of these houses are the collections of *Sarracenias* and *Filmy Ferns*.

The remaining houses must be passed briefly over, though containing numbers of plants in flower, such as the Azaleas Mr. Williams has exhibited so successfully at the recent shows, and many others besides, *Francisceas*, *Dipladenia amabilis*, *Allamandas*, *Pitcher Plants*, of which there is a fine collection, *Ixora coccinea*, *Pimeleas*, *Heaths*, *Genetilis*, &c. Ornamental-foliaged plants are equally well represented, comprising the new *Dracena Guilfoylei*, which promises to be a valuable kind for conservatories and rooms, being so hardy and so diversified

in colour; many new continental *Caladiums*; *Calamus ciliaris*, an elegant table Palm; *Cocos Weddelliana*, one of the handsomest of Palms; the new *Crotons*, *Alocasias*, and a host of other plants. One, *Sonchus pinatus*, though not belonging to a dignified genus, may be mentioned as forming a graceful plant for table-decoration in winter; in summer it is useless, for it then loses its leaves. Two other plants but of quite recent introduction also deserve mention—namely, *Godeya splendida*, which is said to have large, pure white, sweet-scented flowers, and *Theophrasta nobilis*, which, it is considered, will be a valuable addition to ornamental-foliaged plants.

Since our last visit two new houses have been added facing the Junction Road, each 55 feet long by 25 feet wide, and it is intended to connect them by a fernery. One is filled with a fine lot of *Camellias*, the other with Azaleas.

#### WAYSIDE JOTTINGS.—No. 5.

EARLY in the month of July, 1868, I set out to pay a long-projected visit to Whitefield House, near Wigton, the residence of Jackson Gillbanks, Esq., a magistrate of the county of Cumberland, and a gentleman well versed in many branches of natural history. As a drive of fully nine miles, mostly over a narrow and rough country road, lay before us, my companion, a neighbouring medical practitioner, agreed with me upon making an early start. The morning was lovely, and though the weather of the preceding ten days had been close and sultry, a fine breeze from the north-west served to keep down the temperature to quite an enjoyable degree on this particular morning. As we passed along the sides of several newly-mown meadow fields, the fragrance of the freshly-cut grass was very grateful. My medical friend several times remarked upon the mellowness of the atmosphere, and we congratulated each other on the prospect of the holiday on which we were just entering. A lively chat on matters connected with natural science, of which ornithology and botany formed the chief elements, served to beguile the weariness of what, under ordinary circumstances, would be considered a jolting and uncomfortable drive. The blossoms of the Guelder Rose and the Honeysuckle studded the hedges of the narrow lanes, and at one particular point of our journey the flowers of the Rough Cow Parsley (*Myrrhis temulenta*), were so abundant as almost to hide with a mantle of dazzling whiteness the hedge banks on which it grew. In the meadows near Ireby old church we noticed very fine specimens of *Orchis Conopsea* (Aromatic pale Orchis), with the delicious odour of which my companion was up to this time unacquainted. Several other Orchids were growing in the meadow, but as these were at some distance from the road we did not stop to examine them, keeping in mind the extensive field of observation which lay before us on the mountain sides to which we were by this time rapidly approaching.

On arriving at Whitefield, the situation of which at the head of Overwater Lake and in close proximity to Skiddaw we greatly admired, we found a hearty welcome from the proprietor, who had kindly promised to be our guide as well as host for the day. After a short rest we sallied forth provided with spuds, hammers, and collecting boxes, and took our way towards one of the offshoots of Skiddaw, called Cockup. While still within the grounds of Whitefield, Mr. Gillbanks pointed out to us the locality of an ancient encampment, having the oblong outline of those erected by the Romans, but only limited in extent, having probably formed an outpost to some of their larger stations.

Soon we found ourselves on the mountain side, and as I busied myself in securing specimens of *Pinguicula vulgaris* (Butterwort), *Saxifraga stellaris* (Starry Saxifrage), and other plants which grew in the spongy grounds at the base of the mountain, my guide jocularly called to me to hold hard, as he was afraid I might overload myself at the outpost.

Gradually we made our way up the face of the hill in a slanting direction, and pointing towards a "hawse" or pass between two mountains, which it was our purpose to gain. As we ascended the springs became fewer, and the soil changed in character. It consisted almost entirely of the debris of the slaty rock composing the mountain, loosely scattered over the surface, and covered with a profusion of the finest Parsley Fern which I had ever seen. The lively green of the large hassocks of this plant formed a striking contrast to the lichen-covered surface of the crags, which here and there protruded from the soil in an irregular and picturesque manner.

Higher up yet, the gorge narrowed like a funnel, and we re-

pestedly halted and turned round to admire the change of scenery which our more elevated position commanded. Eastward and westward the prospect became less and less extensive as we were more hemmed in by the mountains, while to the northward, looking over the Abbeyholm level, and far across the Solway to the mountains of Kirkcubright and Galloway, the eye wandered over a vista charmingly diversified with mountain, wood, and water. Shortly we crossed the summit, and began to descend a ravine, which our guide had proposed that we should examine for Ferns, the more special purpose of our search being to determine whether the *Asplenium viride* (Green Maidenhair Fern) grew within its precincts. Our investigation may serve as the subject of a future article, my jottings having already extended to the full limits of my present paper.—H.

### NOTES AND GLEANINGS.

"NATURE" believes that the Government will propose to Parliament that the NEW NATURAL HISTORY MUSEUM shall be built on the site occupied by the Exhibition of 1862, south of the Royal Horticultural Gardens.

A JOURNAL OF HORTICULTURE has been started in Portugal under the title of *Journal de Horticultra Pratica de Portugal*, by M. José Marques Loureiro. M. Welwitsch has shown how wide a field for further exploration by botanists still remains in the Portuguese settlements in Africa.

We must make an exception to our usual rule, to direct our readers' attention to Messrs. Farbrother, Lyne, and Wheeler's advertisement of the SALE OF TROPICAL PLANTS at SION HOUSE, on the 22nd prox. Although the Duke of Northumberland is only selling a portion of his magnificent collection, on account of extensive alterations and new arrangements of the gardens, yet we know in the portion to be sold are many specimens worthy of a place in the finest collections.

A most curious fact observed by botanists is that some plants assume a resemblance to others of totally different genera. So remarkable is this, that they have been designated "mimetic plants." Mr. Wilson Saunders made some remarks upon them at a soirée of the Linnean Society, and this having led to further public notice, he sent the following list to our clever contemporary "Nature." Mr. Saunders states that the plants were none of them grown for the purpose, but simply selected from his greenhouse on the spur of the moment for the purposes of the soirée:—

<i>Olea europaea</i> .....	Oleaceae
<i>Swammerdamia Antennaria</i> .....	Compositae
<i>Kleinia ficoides</i> .....	Compositae
<i>Cotyledon triacanthoides</i> .....	Crasulaceae
<i>Trifolium latifolium</i> .....	Leguminosae
<i>Selaginella circinata</i> .....	Lycopodiaceae
<i>Euphorbia xylophylla</i> .....	Euphorbiaceae
<i>Polygonum platycladon</i> .....	Polygonaceae
<i>Peperomia</i> sp. Brazil .....	Piperaceae
<i>Nematostema longipes</i> .....	Gesneriaceae
<i>Euphorbia planifolia</i> .....	Liliaceae
<i>Cotyledon (Echeveria) aloides</i> .....	Crasulaceae
<i>Gymnostachyum Verschaffeltii</i> .....	Acanthaceae
<i>Echites rubro-venosa</i> .....	Apocynaceae
<i>Sempervivum arenarium</i> .....	Crasulaceae
<i>Haworthia atrovirens</i> .....	Liliaceae
<i>Echinocactus Blankii</i> .....	Cactaceae
<i>Euphorbia echinata</i> .....	Euphorbiaceae
<i>Ardisia</i> sp. Bahia .....	Ardisiaceae
<i>Fulicodendron</i> sp. Trinidad .....	Araceae
<i>Dorstenia</i> sp. (near <i>villosa</i> ) Brazil .....	Moraceae
<i>Eranthemum</i> sp. Brazil .....	Acanthaceae
<i>Grevillea</i> sp. .....	Proteaceae
<i>Aescia chordeophylla</i> .....	Leguminosae
<i>Enonymus latifolius</i> .....	Celastraceae
<i>Hedera canariensis</i> var. .....	Ardisiaceae
<i>Nex Aquifolium</i> var. .....	Aquifoliaceae
<i>Osmantbus Aquifolium</i> var. .....	Oleaceae

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

AMIDST the great pressure of business throughout the spring months, seed sowing is very apt to get in arrears. When such is the case, a fortnight may generally be recovered by having recourse to steeping, in order to hasten germination. There is sometimes sufficient moisture in the ground to induce the first stage of germination, yet by the time that takes place, and before the tender radicle has extended beyond the reach of

such vicissitudes, drought has overtaken it, and total desiccation is the result. Now, in these cases, if the seed is on the eve of germination previous to its being placed in the soil, and if the soil is freshly dug, the young plant will in general establish itself in safety. The plan is to steep the seeds in water a about 36 hours or more, according to the character of the seed, and to place the vessel where it will maintain that temperature; then to strain the water away, and to remove the seeds to a more moderate temperature, say 65°, until the first signs of sprouting, when the seed bed should be instantly prepared; the vessel, however, after pouring the water off, should be covered with a cloth, to prevent the surface seeds from drying up. It is also necessary to turn the seeds once or twice. The Cape, although a small *Broccoli*, is one of the most useful in the kitchen garden, if a constant succession is required. This is a good time to make a very full sowing to supply the table throughout October and November. It is also a good plan to sow some Cape *Broccoli* in drills, prepared after the manner of a Celery trench. The seeds should be dropped in patches rather more than a foot apart, to be afterwards thinned to about three in a patch. Sow a little more of Knight's Protecting, and a sprinkling of some very late spring *Broccoli*; it may serve to prolong the succession next April and May. *Cauliflowers* sown now will head in November, and may then be housed in cellars, sheds, or out-houses, and continue in use until past Christmas. Every attention should be paid to *Celery* plants; they must have abundance of water in every stage. Those pricked out from the seed bed should have well-prepared beds, the surface of which, for 2 inches deep, should consist of well-rotted manure, soaked with water, and rolled or pressed level previous to pricking-out the plants. If the weather prove sunny they should be shaded with boughs. A few *Ice plants* should now be planted out in a warm border to garnish the autumn desserts.

#### FRUIT GARDEN.

A thorough picking of grubs or insects from fruit trees should now take place. Vines on walls or buildings must be attended to, in respect to disbudbing and stopping. Apricots should also be well examined for the grub, and Peach trees on walls judiciously thinned of wood and fruit.

#### FLOWER GARDEN.

The weather has been excessively dry for some time; we have an unclouded sky and a fervent glare of sunshine. I am afraid this is very general. Much care will now be necessary in watering the flowers recently planted out in masses. Early morning watering may be still adhered to, as in a period like this the dispersion of ground heat is rather a benefit, the nights being mild and conducive to growth. All mass flowers in highly-relieved beds should, when planted out, by all means have a hollow basin or concave surface reserved around the stem, or rather on the upper side, for a fortnight after planting; this will serve to retain the water, and cause it to percolate the soil in contact with the roots. If this be not done, the water on raised surfaces runs off, and in doing this produces a glazed or puddled surface, under which no plant will thrive until the crust is broken. Hardy Acanthaceae shrubs, as *Azalea* and *Rhododendrons*, on highly-dressed lawns should at this period have thorough waterings in dry weather. Carnations must now be strictly attended to. A top-dressing of rich compost will be found highly advantageous. Take care that the ligatures are not too tight on the stems, otherwise they are apt to become distorted. Pinks will be blooming; they must also receive a due share of attention. Tie some waxed thread round the buds to prevent them bursting. In selecting seedlings, do not keep those which have serrated petals. Ranunculuses this warm weather are making rapid progress. Occasionally water between the rows with soft water. A slight sowing will be of immense advantage to them. If *Dahlia* have not already been planted out, this ought to be done immediately; at the same time their supports should be put in, so that the roots may not be injured, which would probably be the case if staking were delayed to a later period. Water and mulch the surface of the soil round the stems. Pansies may be struck under hand-glasses on a shady border; let the cuttings be put in as thinly as possible. Auriculas and Polyanthuses should be carefully tended; the latter are very apt to suffer from the attacks of red spider during dry weather. Shade is absolutely necessary for their successful cultivation.

#### GREENHOUSE AND CONSERVATORY.

Continue to clear away exhausted flowers, in order to afford room for fine specimens of *Fuchsia*, *Pelargoniums*, *Calce-*

larias, Roses, and other gay and popular flowers. If a canvas screen is used, some of the Orchids may be removed to the conservatory for the sake of prolonging their beauty. See that the Fuchsias have abundant watering. Continue to train Kalosants neatly, and water with liquid manure occasionally. Specimen Scarlet Pelargoniums should likewise have liberal encouragement. Show and Fancy Pelargoniums for late blooming will thrive better in a rather shady situation, and the latter especially where they can at the same time be protected from heavy rains. The glass must be entirely taken off Japan Lilies and Gladioli, unless very early blooms are desired. Keep a portion in the shade of a north wall for a succession of bloom.

#### STOVE.

Continue to shift young and growing stock, and to remove early-grown plants for autumn or winter flowering to the cool shelves of the greenhouse, in order to harden their wood and prepare them for early excitability. This is a principle not sufficiently acted upon. Much of the success in obtaining winter flowers lies here. Stanhopeas will now be blooming; the baskets should be well examined, or fine buds will be lost through contact with the sides. Let the house have a thorough circulation of air early in the morning, and if the atmosphere is warm give air most abundantly. If the fire is allowed to go out early the air may be somewhat reduced by 11 o'clock; pour water about, and the canvas screen may be thrown over the roof if sunny.

#### PITS AND FRAMES.

Let a stock of young plants be forwarded in small pots forthwith. Achimenes for late flowering may be brought on gently here; it is astonishing what an amount of dryness for a great length of time these will endure if well ripened. The stock of Balsams and other annuals grown for filling the vacant places in the greenhouses, &c., should be encouraged by frequent shifts. Keep the plants in bottom heat, and near the glass; pick off the early-formed bloom buds, as the plants should attain a considerable size before being allowed to flower. Fumigate whenever green fly appears, as if suffered to establish itself it soon disfigures the plants. Make a sowing of Cineraria seed for winter blooming. Varieties of Schizanthus which are coming into bloom should be occasionally watered with liquid manure.—W. KEANE.

### DOINGS OF THE LAST WEEK.

*Watering.*—In a day from home which we lately had, one of the things that struck us most was the abundance of water. Inside the houses, and outside in the garden, water was used without stint. In lake, river, rivulet, and water-works, there seemed to be water everywhere. In one of the neatest nurseries we have seen—well kept, and for its size rich in portable specimen trees and shrubs—that of Mr. Sheppard, of Bedford, they were moving evergreens in very dry weather so as to give them more room, but a long gutta-percha tube enabled the workmen to flood the rows. Under such treatment we should be surprised if a tree or shrub failed, and all the more because in our quiet walk round we noticed that the water was given immediately to the roots in the trench, and the drier soil put on the surface. In another nursery which we often see, and where part of the ground has the benefit of a running stream, vast numbers of fine shrubs that had been moved, and where no water could be given, have failed, and thus entailed a very great loss, even though the shrubs were moved in winter and early in spring.

Several notices have been made as to what our correspondents say is a "new mode of watering and digging," so as to keep moisture in the soil. We do not think there is anything new in either. The keeping of the dry surface to the surface is chiefly applicable and advisable when we wish to prevent the moisture beneath escaping. If we wished to increase the heat of the soil we should turn down the surface after being well heated by the sun, and with a stream or a hose of soft sun-heated water at our elbow, we would most likely adopt that plan in order to produce rapid growth from a well-heated soil. We are not yet sufficiently aware of what may be done by turning the heated soil down and bringing the colder up to be heated by the sun. In our case we were obliged to do what we could to keep moisture in, even if by so doing we kept out heat to a certain extent.

As to the mode of watering at the roots, instead of on the surface in spring, and early in summer, that too is very old.

Many years ago the late Mr. Joseph Knight, of Chelsea, the predecessor of Messrs. Veitch, noticed a youth in transplanting acting on this principle, and inquired his reasons, with which he seemed perfectly familiar. The practice is chiefly applicable to the circumstances and times mentioned. The same shrewd business-man at another time, in the heat of summer, noticed the water poured freely from the spout of a watering-pot on slightly sunk beds of fine American plants. There was no question as to the quantity of water necessary to reach the roots, nor yet as to the dispatch in using the spout of the watering-pot, a hose then not being applicable; nor yet as to the propriety of the mode if forced to water near the noonday hours; but as it was then about 4 p.m., Mr. Knight suggested that it would be better, though it took a little longer time, to use the same quantity of water by going over the beds several times with a rose on the pot, thus cleaning and refreshing the foliage as well as the roots, and to hold the pot as high in the hand as convenient, chiefly that the drops of water might carry as much air down with them as possible. This idea is well worthy of attention, and has not been worked-out so much by many of us as it might have been, chiefly first from scarcity of water, and then, again, from the water being so much the reverse of clear that it would not improve the foliage.

These American plant beds suggested another valuable practice—that of surface-mulching. At that time the chief supply of water for the Exotic Nursery was obtained from a large tank, which was filled by a pump from a well, and many a youngster dreaded the hour in rotation at the pump, as the ground foreman was pretty rigorous in enforcing that so much height of water should be in the tank in an hour. From frequent watering in very hot weather the surface of the bed became smooth and hard, and therefore, from the absorption of heat, evaporated the moisture given very quickly—so quickly that the surface roots were apt to suffer from alternate extremes of cold and heat, and moisture and dryness. When well moistened, mulching would have reduced the watering to a minimum. It mattered not so much what the mulching was. The best would have been rough dry peat for American plants, the next rotted leaf mould or decayed dung; but as the spaces between the beds consisted of the common soil, a little of that thrown over and left loose would have saved a vast amount of watering, caused the plants to flourish even better, and when the weather changed, or towards autumn, taking most of this earth away and placing it in its original position would have involved little labour in comparison with frequent watering, even where water was plentiful but had to be carried or wheeled, and would be a good makeshift where it was scarce. Surface-stirring the ground, as with a Dutch hoe, not only keeps weeds from growing, but it acts as a mulching to the soil beneath, and therefore is peculiarly useful in such summers as the present.

There is nothing in which beginners and enthusiasts err more than in watering. As timely, though old in these pages, let us advise them never to water a plant except when it needs it, and never to water without giving enough to reach the roots. Do not forget that if intended as waterings, frequent surface-sprinklings that do not go deep enough do more harm than good, as surface roots are first encouraged and then burnt up. If water is applied at the surface and enough is given to reach the roots, think of the modes referred to above for keeping the moisture in. Notwithstanding, very slight surface-sprinklings from a syringe or the rose of a watering-pot are very useful when regarded as sprinklings and not as waterings. They are especially useful to all fresh-potted and fresh-planted-out plants when the roots are damp enough, and yet cannot contend at first with the evaporation from the foliage in a bright sun. Such a sprinkling refreshes the foliage, and what little falls on the ground soon rises as vapour, and thus, even when the sun shines, the sprinkling from the syringe will act much the same as a shade in arresting free evaporation. Just now it is most effectual when given about 9 a.m. and 4 p.m., but in the case of bedding plants we have made a paill of water go a good way at midday. Let it be clearly understood that this sprinkling is never intended to act on the roots, except as refreshing and lessening evaporation from the foliage. The drenching the roots of plants wet enough already is much worse than needless. We have several times been forced to prove, when suffering from thirst, that nothing is so sweet and refreshing as a draught of pure, cool, and yet not too cool water. When thoroughly satisfied and the thirst was gone, it would be a great punishment to force us to drink a pint or a quart more. Many a plant if it could speak would tell how it had been drenched

out of existence. Of course, many this season will suffer from an opposite cause.

**Remunerating Labour.**—The active workman, even if the labour hours be shorter, is by far the most desirable helper, not only because he does more work, and does it better, but because he does it in such a way as to tell you unmistakably that he cannot help himself, he must so work in order to secure his own happiness and comfort. Such a man is a treasure. We have long felt, and we trust our Editors will help us to give utterance widely to the feeling, that in the case of garden and farm labourers, a change is much wanted in this respect. As a general rule they are mostly paid alike all over, just as if there had been some labourers' union law to secure the uniformity. It has often grieved us to have to pay the same money to two men, whilst merely common justice, and the equivalent for labour done, demanded that there should have been a great difference, and the man who cannot be happy without working, must sometimes have the thought pass through his mind, "Why need I exert myself? I get no more than M, who takes it so easy." But what inducement is there for the easy-going workman to alter his conduct? Did he perceive that N received something substantial more a-week than himself, he might be induced to think a little more widely, and try to solve the problem, why he should not make his labour as valuable as that of M, if he did not go a step further, and get an inkling of the fact that he would work with more comfort and pleasure if he worked more energetically. It is one of many pleasant reminiscences, that we were enabled to help to do away with the distinction in the wages of married and unmarried labourers, a system which did so much to foster early and imprudent marriages, with the many consequent evils, and we should be pleased if in garden and farm some attempt were made to discriminate in the tangible shape of wages between the active, conscientious, interest-taking workman, and the workman who was merely a clock man, who thought of nothing but how he could most lazily and easily pass the time away.

#### KITCHEN GARDEN.

Owing to the sewage-watering the main early supply of Cabbage so covers the ground as to bid defiance to the fiercest sun, and the roots may go down as deeply as they like, to pump up moisture. We have been obliged to give water to Lettuce, and if the fierce sun continue we shall place some boughs of trees, or even a thin scattering of clean litter over them, to keep them cooler, as our water is nearly exhausted, and we must reserve a little clean water that we have in one tank for the most particular purposes. It is almost useless to think of transplanting Lettuces without being able to water them. They flourish tolerably well, however, even in dry summers if sown thinly, as stated last week, merely securing a little moisture beneath at first, and left to perfect themselves where sown. With the ground kept surface-stirred we have thus had good Lettuces in dry summers without any watering, though they might have been a little more juicy with it.

Partly from having fewer birds, and partly from running small string well supplied with pieces of newspaper over the rows, we find that our Beet that we sowed in the ground has been little meddled with. For years we could obtain none without transplanting; as soon as the red leaves appeared off they went. We mulched Beans, and our first and second Cauliflowers, and several rows of Peas, especially those sown on the ridges of beds intended for Celery. Peas in pots, referred to last week, and placed in the Celery trench, the pots covered to last week with the dung intended for the Celery, have done remarkably well, and have been very useful, as our most forward Peas out of doors will scarcely be in when this appears in print. When danger from frost is over, they seem to succeed better out of doors than under glass. Had we more room we should be inclined to grow more in 10 and 12-inch pots under protection, and then plunge the pots in the ground at the end of April.

Something better than a monument should be awarded to the man who first practised re-lending seeds. A few years ago all the Peas here, except the very latest, were sown in pots, &c., and planted out. It was perfectly useless to sow at once. Even with the help of nets, every morning the rows would be turned up from end to end. This season it is quite a treat to look on the rows of Peas without net or anything else, and not a Pea meddled with; as referred to before, not a hole was made in quest of them, showing the wondrous instincts of birds and animals.

We proceeded with staking Peas, and here we must notice, that though approving much, if we had them, of the Pea

hurdles lately advertised, we do not join issue with a correspondent, who thinks they ought to come together at the top like a triangle. That is how a good many of our Peas are staked, do as we will. Bringing the two rows of stakes to a point, or slightly to cross each other at the top, looks neat, is easily done, and it answers well enough for dwarf Peas that do not rise so high as the stakes; but for all tall-growing kinds the stakes furnish little holding room for the Peas that get through, fall over, and have their stems broken. We greatly prefer to have the Pea stakes nearly perpendicular, as the figure of the Pea hurdles is shown to be. We think that the open space in the centre would suit much better than bringing the hurdles to a point.

#### FRUIT GARDEN.

With the exception of the young Cherries being nipped off, as lately referred to, they have set very freely on the trees not interfered with. We gave little or no protection this year, and we have suffered nothing in consequence, as the fruit in many cases would require severe thinning to enable it to have anything like justice. Some of our Apricots seem to have suffered from dryness, and we fear that in one or two cases we watered rather late. Noticing signs of distress, we would not have believed that the soil had been so dry, if we had not examined it. We must try, and for want of better, give a soaking of sewage water, as the water will be pretty pure before reaching the roots. From several cases we have closely examined, we feel persuaded that the sudden giving way of Apricot trees has often been owing to dryness at the roots. As a rule, they need more moisture than the Peach. The thinnings now come in useful, and so have the thinnings of Peaches in the orchard house. In the latter place Cherry and Plum trees, as well as Peaches in pots, have set their fruit freely, and are swelling well. The latter must be thinned several times more, for in many cases they were as close as ropes of Onions. We must mulch them all again to save watering.

#### ORNAMENTAL DEPARTMENT.

The grass on lawns is still green, and if the drought has lessened growth, it has saved mowing, and maching. The Daisy knife has kept a green surface, and with comparatively little labour.

We are now busy filling the flower beds, and the plants seem to do well with a very limited supply of water given at the roots and the drier soil left at the surface. The preparation of the beds was completed as referred to last week, the surface being chiefly kept to the surface. We noticed a remark that will be new to many in Mr. Keane's last week's paper—namely, that in the case of strong-growing *Perlagoniums* it is well to make the hole in rather firm ground, so as to lessen growth and promote blooming. The mode will have most of the effects of plunging the pots with the plants. Both modes would be useful in moist places, but in dry districts it is important to encourage free growth, as moderate luxuriance is always pleasant to the eye, and a well-stirred pulverised soil is one of the best modes of securing it.

Most of our plants are planted out in temporary beds, and the chief care, besides lifting them carefully, is to water them some hours before they are wanted. No plant turned out with spade or trowel, or even transferred from a small pot to a larger one, ever does well when transplanted or repotted with the roots or the earth round them dry. It is hardly possible to wet such dry soil afterwards, unless, in the case of a potted plant, the pot be soaked in a tub, which would make the fresh soil like a morass. From all the dry soil, or ball, the water will pass into the fresh soil, leaving the former unmoistened, just as rain would trickle from the wing of a duck.

We sowed more annuals, placing the seed on the damp soil beneath. Marigolds, Stocks, Asters, &c., want planting out and pricking out. The latter plan will be adopted if the dry weather last, as then they will lift with balls, and one gentle watering will do. The same rule will apply to dwarf annuals sown in rows; they will be lifted and transferred in patches with a ball adhering. All annuals, transplanted now with the dibble will want more watering than we can give them, and the water must unfortunately be applied at the surface. Plenty of room will be obtained by turning out the best bedding plants; and annual Phloxes, everlastings, Salpiglossis, &c., will do all the better if pricked out or potted previously, as then they can be established before going out. It is easier to water some hundreds together in a bed than some scores scattered about. We pricked off and repotted Balsams, Feathered Cockscorns, and Primulas, potted *Perlagoniums* for autumn blooming, and proceeded as fast as we could with Achimenes, Begonias, Cala-

diums, Ferns, and plants generally, but the bedding plants will be our chief work for some time. We know that many think we are much behind, but we shall see whether there is so much gain in early planting two months hence. We must often consult circumstances and position. There is nothing lost by a little extra preparation.—R. F.

# METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending May 31st.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Air.	Min.	1 ft.	2 ft.		
Wed. . . 25	30.327	30.285	71	39	56	53	N.E.	.00
Thurs. . . 26	30.323	30.321	72	32	56	53	N.E.	.00
Fri. . . . 27	31.216	31.129	68	31	66	53	E.	.00
Sat. . . . 28	30.106	30.060	72	49	55	52	E.	.00
Sun. . . . 29	29.990	29.932	77	47	55	52	S.	.40
Mon. . . . 30	29.868	29.716	74	44	60	53	S.	.00
Tues. . . . 31	29.829	29.636	67	35	59	54	W.	.04
Mean.	30.094	30.004	71.57	39.14	56.71	52.86	..	.084

- 25.—Foggy; clear and fine; clear and cold at night.
- 26.—Foggy; very fine; clear and fine.
- 27.—Foggy; overcast; clear and fine.
- 28.—Very fine; foggy; but fine; fine, cloudy.
- 29.—Very fine; exceedingly fine; overcast.
- 30.—Overcast, strong wind; overcast; cloudy.
- 31.—Overcast; cloudy; heavy clouds.

# TRADE CATALOGUE RECEIVED.

J. Linden, Jardin Royal de Zoologie et d'Horticulture, Brussels.—*Supplément et Extrait des Catalogues généraux.*

# TO CORRESPONDENTS.

63.—Being published in time for transmission by the Thursday morning mails. THE JOURNAL OF HORTICULTURE should, with few exceptions, be delivered on the same day in all parts of the country. If there is any delay, let our readers apply to the nearest railway bookstall, and by paying their subscriptions in advance their copies will be regularly supplied. If country booksellers cannot obtain the Journal in time, we shall be obliged by their communicating the fact to our Publisher.

•• We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

BOOKS & C.

(A. T.).—We do not know of such a periodical. (T. Clough).—Gray's "Supplement to the Floracoe" (Poplar).—Kean's "In-door Gardening" will suit you. It may be had free by post from our office if you enclose twenty postage stamps with your address. (Orison).—There is a volume by Mr. Porter, "The Tropical Agriculturist," or some such title.

PEAS MILDEWED (H. G. Bitterlich).—Apply flowers of sulphur immediately, dusting over all the leaves thoroughly, or the whole of your vines will be attacked, and the crop destroyed.

NECTARINE TREE UNFERTILE (Eastbourne).—There is little doubt as the tree is "very much shaded by the Vines," that want of light is the cause of the blossoms not setting. Cannot you train the Vines so as to admit more light to the Nectarines?

STEPHANOS FLORIBUNDA FRUITING (Golders).—It is not rare for this plant to fruit. It is not a seed-plot but a fruit. We cannot say that it is edible, we think not. The fruit will, no doubt, have seeds, and they will be ripe when the fruit is, when they may be separated from the pulp by washing with water, and when clean placed in the sun to dry. You may sow them when dried. A strong heat is necessary, and light sandy peat soil.

TEMPERATURE FOR BRAZILIAN FERNS (C. L. J.).—Ferns from Brazil will in summer require a temperature of 60° to 65° at night, 70° by day without sun, and 75° to 85° with sun and moderate ventilation; in winter, 50° to 60° at night, and in very cold weather the temperature may fall to 50° at night without injury to the plants. Let it be 60° to 65° by day from fire heat, and 70° to 75° from sun, with moderate ventilation.

RIPE MELONS AND CUTTING THEM (T. S.).—The best time to cut a ripe Melon is as soon in the day as the moisture of the night is dissipated by the sun's heat, and that will be in the early part of the forenoon. The

fruit is ripe as soon as the footstalk begins to separate from the fruit, evidenced by the cracking around it next the fruit. The favour of the Melon is best about three days after the fruit is cut, or after the cracking of the footstalk takes place. The fruit, after being ripe, is best kept in a dry, light room, but not exposed to sun. The flavour of the fruit would not be improved by cutting away the leaves immediately over it.

GREENS, FATTY AND SWELLING (Bottom-hill).—The fruit not swelling is, we think, due to a deficiency of bottom heat, and an excessive amount of moisture in the atmosphere, which causes the fruits to go off at the ends. Perhaps all would do so well if you were to give a few degrees more heat, seeing that the soil is in a healthy state as to moisture, and admit air early to the bottom heat, but with a covering with the use of straw. No soil is better than rather light loam from rotted turves, chopped up rather small. We use nothing else, but for winter work we add about one-third sandy fibrous peat, and we have generally more fruit than we need.

LARCH TREES INFESTED WITH APHIS (Thos. Nichol).—We think the "white bug" which infests the larch trees is an aphid, probably the *Ulmus*. It is very destructive to the young growths of Larch, and hinders the growth considerably. The liquor of the tobacco manufacturer, diluted with six times its volume of water, will destroy it, the liquid being syringed on the trees. Gishurst and Clarke's Composts, at the rate of 2 ozs. to the gallon, would also free the trees of this pest. The solution of either of these should be syringed over the trees on a calm evening.

PLANT TO HANG DOWN THE SIDES OF A FOUNTAIN (L. M. X.).—You do not say whether the sides of the fountain-basin are constantly wet, for if not so aquatic would grow beyond the water, and, indeed, the whole of the trees, Gishurst and Clarke's Composts, at the rate of 2 ozs. to the gallon, would also free the trees of this pest. The solution of either of these should be syringed over the trees on a calm evening.

UPPERCASE FLOWERS (Flora).—We advise you to turn the Cyclamens out now in an east border, other places shaded from the direct midday sun, and leave them there until they begin to grow in autumn, then take them up and place them in pots sufficiently large to hold them without cramping, using two parts light loam, one part leaf soil, and a free admixture of sharp sand. Place them in a cold frame, and keep them well aired, but protected from heavy rains and frost, and when the weather becomes frosty remove to a light airy position in a greenhouse. If the pots are filled with roots shift into others a size larger, and you may use equal parts loam and sand, old cow dung, and a little of the latter, with a fourth part charcoal in pieces, from the size of a pea to that of a hazel nut, and one-sixth of silver sand. This will grow them well, good drainage being given. Water when required, but avoid making the soil sodden. We think you will have next year good foliage.

MRS. POLLOCK'S CAMELLIA CHANGING COLOUR (H. K.).—The cause of the leaves becoming green is, no doubt, their not having a sufficiency of light, and being kept at too great a distance from the glass. If you were to place them in a frame, and shade them for a few hours during the hottest part of the day when the shade is very bright, you will have little trouble. A difference. *Lycopodium* on 12-inch pots will to a certainty injure the Camellias and Azaleas growing in them. The surface ought to be free of moss, and every plant but that intended to occupy it. Moss in a pot of *Taxodium* is even worse than the *Lycopodium*. Remove all such obstructions, for no plant will do well when another is monopolising a portion of the root nutriment.

CUTTING ASPARAGUS (E. H.).—The cutting of the heads may be continued up to the 20th of June, but it is essential that some of the heads be allowed to grow—say two or three from each crown at the end of May or beginning of June, confining the cutting to those that appear from the crown after the two or three shoots to each have been secured. The cutting in that case may be continued up to midsummer, but if no shoots have been allowed to rise, all being cut, the cutting should cease after June 12th.

PEA FOR PRESENT SOWING ON LIGHT SOIL (Idem).—For present sowing we do not know of a better from 1 to 6 feet in height than Improved Green Marrow; the best Pea to sow now is *Ne Plus Ultra*, but it grows 7 feet high. A dwarfier kind is *Hair's Dwarf Mammoth*, also a frutescent Pea for present sowing, and it attains a height of 3 to 4 feet. For sowing late Peas, sow in a trench be taken out 2 feet wide, and a spit deep, potting in about 3 or 4 inches of manure; then point it in at the bottom of the trench, put in about half the soil, then another layer of manure, forcing it in also, and then make level with soil, and sow the Peas in a rather wide trench, watering well if the soil be at all dry, so as to bring the seedlings up soon. It is a far better plan than sowing the seed.

MANURING FOR STOCKS, ASTERS, AND PHLOX DRUMMONDI (Idem).—It is essential that the soil be in good heart for these plants, therefore a liberal dressing of manure should be given, and then point it in with a fork, and dig the soil fine.

WATERING STRAWBERRIES (Idem).—The weather being dry it is very necessary that Strawberries should be well watered. Give good watering every second day. Begin watering when the flowering is at its best, and continue it as long as there are fruits swelling. Watering will not be necessary after the fruit is ripe. *Peas* (Centaur).—*Blue varieties*.—*Selfs*, Cloth of Gold, Royal White, Mist of Bath, Dreadnought, Alexander Tail, and Vesta. *Yellow* Grondais. *Meerfont*, William Auster, William Dean, George Wilson, Carlos, and Alexander Wilmshurst. *White*.—*Grondais*, George Wilson, Carlos, and Alexander Wilmshurst. *Black*.—*Black Prince*, Lady Lucy Dundas, and Miss Newton. *Fancies*.—*Black Prince*, McKelth, Striped Queen, Mrs. R. Haic, Eole, Prince Napoleon, Miss Berry, Imperatrice Eugenie, Princess Mathilde, Mulatta, and Diamant. We cannot depart from our rule not to recommend dealers.

DISEASED LEAVES OF PEACHES (E. M. M.).—What do you mean by "diseased leaves"? The diseases to which they are liable are many.

Remove the suckers as soon as produced. Ants are doing good, either attacking green flies or robbing honeybees from the foliage.

**CYCLAMENS AFTER FLOWERING (Centurion).**—The plants after this should be placed on an east border or other place shaded from the direct midday sun, either planting them out or plunging the pots in cool ashes. The pots ought not to be placed on their sides, nor must watering be neglected if the plants are long in pots. Water them in dry weather, but not so as to keep the soil very wet, yet it should be moist and in good till the soil will require water, or only during a long period of drought. The roots of *Baccara* Napoleon Cherry are certainly fine at forty to a pound, but we have known specimens of larger fruit, and yet your crop was heavier from there being more fruit on the tree; to be, from a tree five years old is very good indeed.

**DIGGING BETWEEN ROWS OF POTATOES (Idem).**—It is a practice as old as the hills, and of no real benefit except in badly prepared ground, which it lightens, and rains are thus admitted: besides air gets in, and the roots spread through the loosened soil; but the soils that are in good till surface being in best, and digging injurious, as it destroys the roots. If the potatoes are not earthed up you will have to see that the tubers near the surface are covered with a little of the soil.

**THE ESPRIME GRAPE VINE—SOOTY FOR ROSES (A Constant Reader).**—The Espime Grape Vine has a very healthy constitution, and is free growing. It is not the nature of the variety, but something else, that is accountable for its growing slowly with you, which may happen with any Vine. The roots are at fault, we should say; possibly the soil is not over-suitable. You may get root on the ground amongst your Rose trees. It is a good measure if used in moderation.

**PARFEGUICH GRANDE LEAVES INJURED (Saltator).**—The leaf sent appears to have been gnawed by a caterpillar, and before the leaf was fully formed, hence the scolloped appearance. Your only remedy will be to examine the plant morning and evening, paying particular attention to the undersides of the leaves, and the crowns nearest the surface. Woodlice will also eat the leaves whilst young, and so will slugs. Cut some raw Potatoes in halves, lay them on the surface of the pots after scooping out the interior of the Potatoes a little, and examine them in the morning. If the enemy be woodlice you will find them under the Potatoes.

**CURE FOR RUSTIC WORK.**—Kate wishes to know the address of the cork cutters who advertise the bark for rustic work.

**MANURING POTATOES, &c. (H. M.).**—If the soil was properly prepared, we do not advise you to apply either guano or nitrate of soda now to your Potatoes, Turnips, Carrots, &c. You will see what we say to another correspondent about earthing up Potatoes. We do not recommend the practice.

**GARDEN FLORIDA TREATMENT (Poplar).**—It will do best grown in a pot, and in a compost of two parts sandy peat, and one part light fibrous loam, with a fine admixture of sharp sand. It will not succeed in a cool greenhouse, but requires a warm glass, and a cool stove. It is not difficult to cultivate. Encourage it now to make a good growth by a moist and rather close atmosphere, with a good heat, shutting up early in the afternoon, and syringing morning and evening so as to keep down red spider. A good growth being secured, expose it more fully to light, and admit air more freely, lessening the moisture and the supply of water, and do not give more water than enough to keep the foliage fresh in winter. Pot as soon as the flowering is past, and do not give a very large shift, as the plant does best in a rather small pot for its size.

**ROSE DE FOREVER (Idem).**—A good dark kind is *Rosa* Valiant, Hybrid Perpetual; white *Rosa*, Bosanquet, China, and *Marshall Niel*, Tea-scented. They will not succeed in a temperature "always at 65°." The plants must be strong in pots, and the wood ripened early by placing them in August in front of a south wall. In September they must be repotted, and early in the spring they may be placed in the house with a temperature by night of 45° to 50°, increasing the heat 5° every fortnight until a maximum night temperature of 60° is attained.

**LILY OF THE VALLEY FORCING (Idem).**—For flowering at Christmas the roots may be potted in September or October, and in the first or second week they may be placed in a house with a temperature of 45° at night, covering the pots with an inverted pot, which is to remain until the flower stalks and buds are 3 inches above the ground; then remove the pot and expose them to light. They will soon assume their proper colour. The temperature need not at any time exceed 55° at night, and that ought not to be given until the plants have been in the house a month; therefore, increase the temperature about 5° every fortnight.

**ZONAL PELARGONIUM MANAGEMENT (J. S. Guernsey).**—It is not necessary to keep the plants in doors all the summer for blooming in September. Place them out of doors, and pot at once if the pots are full of roots; if not, defer the potting until the end of June. Remove with the trusses as they show, and keep the plants stopped and tied-out so as to make them bushy. The last stopping may take place at the close of July or early in August, and up to that the trusses should be removed. They should have an open situation, but sheltered from winds. Take them into the greenhouse for blooming.

**NAMES OF PLANTS (Apl).**—We cannot name such specimens, and as you have Sowley's work on British plants, you can at once identify them by the aid of the coloured plates. (J. Y.). We answered at page 387, but seemingly to a wrong correspondent: "apparently an upper shoot of *Composita Lawsoniana*." (L. E.).—*Clematis Florida*, Large-flowered Virgin's Bower, a native of Japan, and cultivated here a century ago by Dr. Fothergill.

Rede, and these have consequently been neglected, except by a few fanciers, who have perseveringly endeavoured to raise them up to the standard.

At nearly all shows the Game Bantam classes are the most numerous filled, and I am quite persuaded that if five classes were allotted to them—viz., one for a single cock of any colour, and one each for Black Reds, Brown Reds, Duckings, and Piles, they would be well supported at all shows, and pay the committees handsomely. Frequently when I have asked, Why do you not show your Brown Reds? the answer has been, "There is no class for them, and we cannot beat your Black Reds, so we shall keep them at home."

A few months ago I corresponded with most of the principal breeders of Brown Red Bantams, and their united impression was that the time had come for them to have a class to themselves at our principal autumn and winter shows, because the number bred this season will probably be more than double that of any former year. A few days since I saw about eighty Brown Red Bantam chickens, some of them nearly ready for exhibition, and the owner of from forty to fifty of them told me he would gladly subscribe towards a silver cup as a first prize, if a class were made for them, and second and third prizes added by the committee. I would likewise do the same. I have myself about fifty Brown Red Bantam chickens, of beautiful colour, and expect to have several pen ready for showing in September.

I hope that committees will take Brown Reds into consideration this year, for with so many admirers as these fowls have, the class must be as well supported as any other. Already our American friends have separate classes for Brown Reds, Black Reds, and Ducking Bantams, and surely we need not be left behind by them when we number ten breeders of Game Bantams to their one.—W. F. EXTWISLE, *Westfield*.

## THE WHITE COCHIN CUP FOR THE GUILDFORD POULTRY SHOW.

FIRST, I think, I had better make right one or two small mistakes which occur in the prize list of this Show about the White Cochin cup which I have been getting up. To begin with, I have no right to the title of "Reverend," which the schedule bestows on me; secondly, I am not of "Merton College, Oxford," but of Pembury, Tonbridge Wells; and thirdly, the cup is not a piece of plate presented by me, but a cup purchased by subscriptions collected by me.

Below is a list of the contributors towards the cup, with their subscriptions, and I most heartily thank all those friends who have so kindly aided me in my canvassing. I trust it will be the last piece of plate we shall hear of collected by subscription for my favourites, the White Cochins.

£ s. d.	£ s. d.
D. Cochrane, Esq., Stour-bridge.....	0 10 6
Mrs. Miller, Tonbridge Wells.....	0 10 6
Miss Hales, Canterbury.....	0 10 6
W. E. George, Esq., Bristol.....	0 10 6
Mr. Allan J. E. Swindell, Stourbridge.....	0 10 6
Mr. R. Smalley, Lancaster.....	0 10 6
—REGINALD S. S. WOODGATE.	£5 5 0

## JUDGES REPORTING.

I BELIEVE "COLUMBA" in his remarks is not sufficiently explicit, as he probably alludes to a judge who "has something to do with the editing of the paper in which he reports," and also appears occasionally as an exhibitor. I am surprised that fanciers have not forwarded you their protests before.—COLUMBARIAN.

[We have another letter more stringent, signed "CASTOR AND POLLEX," and two others, but we must decline inserting any more upon the subject. The objection has now been shown, and we must leave it to be urged on poultry show committees by complainants.—ENS.]

## POULTRY, BEE, AND PIGEON CHRONICLE.

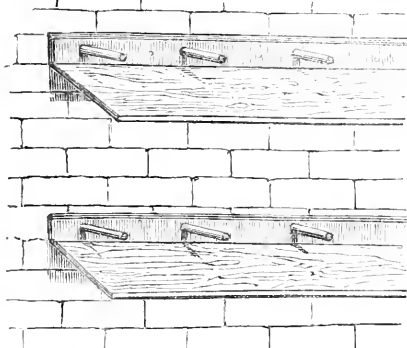
### BROWN RED GAME BANTAMS.

I QUITE agree with "GALLUS," and Mr. J. Croeland, that there should be a separate class for Brown Red Game Bantams, as they have very little chance of winning against Black Reds. Little encouragement has been given to breeders of Brown

### PIGEON ROOSTS.

I HAVE, from time to time sent, under a *nom de plume*, what I consider it is the duty of every fancier to contribute to your Journal—namely, discoveries of experience for the information and guidance of our fellow fanciers; and I beg, now that the construction of Pigeon pens is so admirably explained by my

friend and fellow member, Mr. T. Hallam, to supply your readers with the accompanying sketches, showing the method



in which I construct the roosts in my pen, as it is greatly praised and adopted by many of my friends. I find that generally, in this country, only the triangular roosts are used, but in my opinion it is rather awkward for the birds to fly to them; they are far more difficult to construct, not so easy to clean, and rather obscure the birds while roosting, besides the danger of stiff wings, which in most cases originate from the birds bruising their joints repeatedly while flying on the same roosts.

My plan is thus explained:—I take a strip of wood about half an inch thick, 4 inches wide, as long as the pen allows. I cut a broomstick into lengths of about 5 inches, and I screw these lengths from the back of the strip to the centre of its front, at distances according to the size of the Pigeons kept, say from 12 to 16 inches apart; then I nail at the bottom of the strip containing the roosts, a board about 8 inches or more wide, slanting downwards, which shelters at once all the under roosts, and then by one long scrape to each of the slanting boards, I clean them thoroughly. The strip, with roosts, is secured to the brick wall by nails between each, or every alternate roost; and the weight of the slanting board is secured, as shown in the section of my plan, by a long holdfast, which is first driven into the wall by marking its place before nailing the roosts; and then, by driving a screw through the holdfast into the slanting board underneath, all is complete. In the section the engraver has given the roosts too triangular an appearance.

I originated these roosts and have used them for years, and I find them far preferable to the triangles. A pen may be fitted with as many rows as room will allow, and then one can see his birds all before him like disciplined lines of soldiers.—H. NOTT, Birmingham.

#### MICE IN A PIGEON LOFT.

I NOTICE that you have a further inquiry as to the means of getting rid of these pests, and I believe a great many fanciers are annoyed by them. Last week I paid a visit to my friend, the Rev. W. S. Shaw, of Bath, who breeds prize Fantails and other Pigeons, and was much struck with the plan he had adopted for "doing the mice." He had swung from the ceiling a piece of wood the size of a small door or shutter, in this way.—At each of the four corners he had attached a stout string of copper wire, and these wires were fastened at the other

ends into the woodwork of the roof. Thus a table without legs was supported, firmly enough for the birds to alight on. Strings or rope would not have done, as the table would have moved too easily, and the mice would have travelled down the ropes. Mice are Blondins as to ropes, but scarcely so as to a single wire. Then, on this table was placed an old tea-tray, and on the tea-tray the hopper. Thus not a single pea rolled for the expectant mice below. This struck me as the best plan I had ever seen, for mice who are awake at all hours, especially night hours, eat or defile large quantities of food, and for the sake of the young Pigeons the food must be left in the loft during the night for the early morning feeding; hence, fanciers are at the mercy of an ever-increasing horde of well-fed mice, but this plan thoroughly "does" them.—WILTSHIRE RECTOR.

#### BEEES IN A CHIMNEY.

A SWARM alighted in a chimney, and a fire was lighted in a room whose flue was supposed to communicate with the chimney, but beyond filling the house with volumes of smoke, no other effect was attained. Can you suggest any other method? The bees are far down in the chimney. Now I suppose this misfortune was caused by two things; one, the hive not being properly protected from the heat and light, and the other the hive not being placed on the floorboard directly the bees had ascended. Be so good as to tell me if I am right, that I may know how to act another time.

I wish also to know if a glass hive would not be better if a woollen cover were made to fit over it in addition to the Wood-bury outside wooden cover. Does it disturb the bees much to lift it off to look at them? How am I to know which are drone cells in a piece of honeycomb? What is the usual price of a first swarm, and is it late for them now? Would there be any chance, if a swarm were hived now, of being able to put on a super this year? How wide ought to be the piece of board on which the floorboards stand, to be safe for the hives to stand on without fastening?—ARIS.

[The following method was successfully adopted by a correspondent under similar circumstances:—"A rope with a light weight attached was let down very gently from the top of the flue in which the bees had settled, and when this made its appearance at the bottom of the chimney, a bundle of fresh grass, well damped, and as nearly as possible the size of the flue, was attached to it, and the whole was then drawn gently to the top of the chimney, upon which an empty hive had been already properly placed, into this the bees at once ascended, and were removed to their destination without further difficulty." You are probably right in respect to the original cause of the misfortune. A thick woollen cover would certainly be a very desirable addition, and after the combs are well advanced you will not find the bees much disturbed by being examined. Drone cells can readily be distinguished from worker cells by their larger size. First swarms vary in price from 10s. to 21s. in different localities. It is still not very late for them, and one may yet work a super. A hive should not be trusted on a stand less than 13 or 14 inches wide.]

#### A FAVOURITE RESORT OF BEES.

A MAN who professes to understand bees hived a swarm for me in 1868. He dressed the hive with beer, sugar, and lettuce, and hived the bees from a raspberry stake, saying they were all right. About two hours afterwards they all came out of a hive, and whirled round and round for about a quarter of a mile, about 20 feet high all the time. I and the man who hived them followed them. They settled upon an old vicarage chimney, where there are and have been bees for some years; after a time they all entered, and there I believe they still remain. I had no more swarms that year, so I kept the old stock through another winter.

Last year (1869), they swarmed again about the 6th of May, flew in the same direction, and settled upon a larch tree within a few yards of the old chimney; the same man hived them, and I brought them home quite safe at night. I had another swarm from the old hive in the latter part of the same month; the same man hived them, but they all got up in the same way as the first swarm, and flew to the old chimney, where they settled and entered as before; so I took the old stock last autumn. I saved one swarm, which issued on the 15th of this month (May, 1870). They settled in two lots, but after a short time united, flying about in the air a short time, and then



## WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 9-15, 1870.	Average Temperature near London.			Rain in last 43 years.		Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	m. h.	Days.	m. a.	
9	Th	Meeting of Zoological Society, 8.30 p.m.	70.8	47.2	59.0	46	43	11	48	50	42	47	1	160
10	F	Birmingham Horticultural Show.	69.6	45.9	58.5	46	3	13	8	52	4	11	0	161
11	S	Crystal Palace Show.	72.1	47.6	59.9	45	3	15	8	57	5	12	0	162
12	Sa	TRINITY SUNDAY.	71.4	46.1	58.8	45	3	14	8	59	6	8	3	163
13	M	Meeting of Royal Geographical Society.	71.9	47.4	59.6	45	3	16	8	57	8	4	0	164
14	Tu	[8.30 p.m.]	72.6	47.9	60.3	44	3	16	8	53	9	32	4	165
15	W	Anniversary of Meteorological Society.	72.8	48.2	60.5	44	3	16	8	49	10	23	5	166

From observations taken near London during the last forty-three years, the average day temperature of the week is 71.6°, and its night temperature 47.5°. The greatest heat was 99°, on the 13th and 14th, 1842; and the lowest cold 30°, on the 11th, 1865, and 15th, 1870. The greatest fall of rain was 1.48 inch.

## PRUNING ORNAMENTAL TREES AND SHRUBS.

No. 1.

**P**LEASURE grounds have shrubberies, some disposed so as to afford shelter from winds, others to shut out buildings, others, again, serving as divisions for the eye between the different parts of the grounds. Then there are groups and specimens on lawns, consisting of trees or shrubs, or of both together. The objects are shelter, shutting out unsightly objects, ornament, and shade. Parks have groups, screens, or belts of trees and shrubs for shelter and ornament, and there are smaller groups and isolated trees the sole object of which is ornament and shade.

In both pleasure grounds and parks the trees are planted in groups, some trees being isolated for effect, and they are disposed according to one or other of the different styles of landscape gardening. Into these styles it will not be necessary to enter, as they have no practical bearing on the pruning of trees and shrubs, or but little, and that little will be mentioned in treating of the pruning of the different forms of these. I may, however, state that none of the pruning which I shall advise is available for trees or shrubs planted with the intention of producing an imitation of uncultivated natural scenery.

Trees and shrubs are, as everybody knows, of two kinds—evergreen and deciduous, and they assume various forms of growth. My object being to give some directions for pruning different trees, it will be evident that in pruning regard must be paid to the form or habit of the trees and shrubs we prune; but as it would be of little value, and greatly extend the papers that will be required for the pruning details, to enter fully into form, I think my purpose will be served by dividing trees and shrubs into the classes evergreen and deciduous, and these again into sections, giving such account of form as will enable the operator to understand what pruning is intended to induce.

The aim in pruning ornamental trees and shrubs should be to assist nature. Nothing can be more absurd than to cut shrubs into the shape of peacocks and other fanciful devices—not that there is anything contrary to nature in keeping shrubs cut into shape when the style of gardening or extent of ground requires pruning to be done so as to keep them within reasonable bounds, or to render them cultivable in a limited space. Only some shrubs, and but few trees, will bear the pruning necessary to keep them within small compass, and render them interesting and ornamental in grounds of limited extent; in fact, some are particularly suitable for small gardens, and those where it is desirable to employ shrubs near the mansion, from keeping in good form without interference with their natural habit. Others, if they are cut into form, as it is called, have none of their natural characteristics, or cease to be ornamental.

The other purpose or aim of pruning is to produce fine well-formed trees and shrubs. It is a practice to leave all or most of the pruning of trees and shrubs to nature; and they

never look so well as when left to assume their natural habits. It would be unnecessary to say anything further on the subject if in nature we had no imperfect specimens—if every tree left to itself would form but one trunk and one head—if every shrub would grow perfect in shape without openings, or the other deformities we see in almost every shrubbery; or if trees and shrubs left to themselves did not produce a heterogeneous mass, the stronger and commoner kinds out-growing the weaker, slower growing, and better kinds—if trees had not a majority of the branches on one side—if they did not become forked or have limbs monopolising the greater part of the sap supplied by the roots, so that some of the arms become altogether out of proportion to the others, and are severed from the trunk in stormy weather, often producing a gap on one side of the tree for ever destroying its beauty—if by pruning we gained nothing in uniformity of shape, good-formed yet natural trees not being secured. I have but one view of pruning trees and shrubs, and it is that it aids nature in producing more regularly beautiful trees—they are made to please the eye and meet the requirements of man.

Much might be urged in favour of pruning when straight bulky timber with small side branches is the aim of the planter, and that, too, is an object with the planter of groups and belts in parks. Does he not intend the timber to be a source of profit as well as of ornament? If not, it ought to be. Some have an idea that trees for ornament and those planted for timber require different treatment. No doubt they do when the trees stand singly or in groups of three, five, seven, or more, but in the latter case with such intervals between them that the heads meet, forming in the distance a group or mass. The trees would have no very great attractions if the side branches were small or altogether wanting, and the tree had a straight stem or trunk 30, 40, or 50 feet high, without a single branch, and surmounted with a fine head of branches and foliage in summer, if not in winter. Single trees, small groups, and lines of trees so far apart that their heads do not touch, or but very slightly, would not have a very ornamental appearance trained with stems 30 or more feet high without a single branch, or with a number of small ones, however good might be the heads above that height. In narrow belts, too, it is desirable that single trees, as well as small groups, should be feathered, or have branches that sweep the ground.

Setting aside the single trees, the small groups, and the narrow belts, there is no reason why the large groups and belts that have more than three lines of trees should not have the trees in their interior pruned with a view to producing fine straight timber. The two outer lines of trees will, of course, need to be pruned so as to feather near the ground, and afford foliage. Without any pruning at all it is evident the side branches of trees in the interior of large groups and belts must lose their lower branches by slow decay, and will not be so ornamental as those which are pruned with a view to the production of straight timber. Thus, while we secure all that can be attained in the way of foliage in the interior of large groups and belts, we at the same time obtain trees with straight sound stems by

judiciously pruning the side branches, and we avoid the evils of upruned timber—viz., knottiness, decayed tops, rottenness or hollowness, shakes, and short stems with the greater part of the timber in the branches.

The pruning, then, of trees in pleasure grounds and parks is of two kinds:—First, That for single specimens, for trees in single lines, or if in more than one line so far apart that the heads do not touch, or only do so at a very advanced age; for trees in groups of three or any number, but not more than two or at most three trees deep; or if in groups of large extent, the trees not touching each other, and only appearing in groups at a distance, or by being planted apart from other or larger masses, or from single trees or lines of trees; also trees marking the outlines of large deep groups, masses, or belts. The essential objects of such trees or assemblages of trees are ornament and shelter. Secondly, Pruning trees in the interior of large groups and screens that are required to have clean, straight stems, free from the knottiness of ornamental trees, the growth being concentrated in the trunk, and not in the head, as in ornamental trees, but the trees planted for ornament, shelter, and for use as well.

Under these two heads are comprised the whole of the objects of pruning; in the first we seek by pruning to secure fine, evenly-balanced heads on short stems, and more quickly than where the trees are left to nature; we secure all the grace and beauty nature affords in trees, and we get rid of deformities. In the second we secure straight, sound timber free of knots, or nearly so. By pruning we obtain, if commenced as it ought to be, when the trees are young:—

1. Improved form by removing ill-placed shoots, and those likely to monopolise more of the sap than is requisite for the branches we desire to have on a certain part of the tree; we take from the strong and give to the weak, we stop superfluity in one portion to give increased vigour and new parts in another.

2. By pruning in proper time the danger of taking off large branches is avoided, and the knife being the principal implement needed in the operation, the branches taken off must be small, and the wounds heal very well and soon, the branches being taken off close to the part whence they proceed.

3. By taking off the shoots and branches not needed for form, we give increased vigour to the weak parts, and the stem and top of the tree having the advantage of a greater supply of sap than in the case of trees not pruned, the sap rises more freely, and they are strong in proportion to their height.

4. Pruned trees require less space than those left to nature, for by pruning we take away not only the strongest but also the longest, hence we give more vigour to the upper part of the tree; and by being thinner the parts left have more air and light, and the subsequent growth is freer, with an upward tendency.

5. By pruning we obtain increased size. Every branch we take from a tree sets at liberty a quantity of sap for the benefit of the remainder of the tree; every branch taken off is an obstruction to growth removed, and though some would have us believe that every time we cut the head we curtail the growth of the roots, we must consider that what causes vigour in the tree must also cause an increase in the number of the roots, and, consequently, an increase of nutriment. The channels being enlarged by the freer growth, we have an amended circulation of the sap, and the plant receives, as it were, an improved constitution. I am here acting on the good old maxim, "Cut and have." It is a case foreign to fruit-growing. What we want in ornamental trees is quick, strong growth, vigour with sturdiness.—G. ABBEY.

## WHY SHOULD ROSES BE EXHIBITED ON MOSS?

"To make them look pretty, of course; the nice fresh green of the moss throws up the tender or brilliant colours of the Rose so beautifully." And you think that a satisfactory reply, do you, friend Jones? But yet here is Smith, who thinks precisely the same, stamping about like a caged lion because the judges have disqualified his box. "What did I do? I only added a few leaves to throw up the colours of the flowers; and will you tell me, gentlemen," he demands with a face as red as any of his Alfred Colombas, "what difference there is between me and that fellow Jones, who has crammed his boxes with moss?" Meekly one of the judges replies, "You see leaves are against the rule, and moss is not." "Pretty sort of rules those must be."

While I am listening to this colloquy I am much struck with the fact, that alone of all florists' flowers the Rose—the flower *par excellence*, the queen of all hearts, the Rose whose diversity of colour and brilliancy of foliage surely needs no aid—is yet obliged to be decked out with feathers not her own, and I think it is high time that an alteration were made. In the first place it is unfair—yes, unfair. It is well known I am not an exhibitor, and have not been; but where I formerly was there was no moss to be had within nine or ten miles. Now, had I been an exhibitor I should clearly have stood at a disadvantage as compared with many who have it at their own doors. Unfair again, because some have it in their power to obtain very beautiful moss, in itself a picture, while others can only procure very indifferent stuff. You will say, "The judges do not judge the moss, but the Roses." Without doubt; but just try the effect. Get some chopped grass, put it on the top of your box, and put the box alongside another with lovely green moss, and even if your Roses are a trifle better, is it not a great chance if you receive the first prize? In the second place, it is unnecessary. We cut the Roses and put them in vases in our own drawing-rooms, but do not think it needful to surround them with moss; and if unnecessary, why continue a practice which, in the infancy of Rose-showing might have been useful, but which now is no more necessary than ronge to the young maiden, or a go-cart to the boy who can mount his pony? I may be writing what now seems heresy, but what I feel by-and-by will come to be acknowledged as truth.—D., Deal.

## AN AMATEUR'S ORCHARD HOUSE AND MANAGEMENT.—No. 1.

I HAVE read with much interest the notes and remarks on orchard houses and their management, which have appeared from time to time in THE JOURNAL OF HORTICULTURE, and it has often occurred to me that a few practical hints from an amateur who has had some experience would be as useful as the advice given by professional gardeners, not that I would in any way undervalue their counsel, which is, of course, most important, but because the amateur works in quite a different way to the professional gardener; he has not the appliances of the latter, and he cannot be always in his garden, as it is the other's duty to be, probably having his business to attend to, as I have. I have now had about fifteen years' experience, and have done nearly all the work in my orchard house during that time. The perusal of Mr. Rivers's book on orchard houses first induced me to set up one, and I am still his disciple in most things, but differ in some, as you will see hereafter. With the hope, then, that the result of my experience may be useful to some, I will give you the history of my orchard house and how I manage it.

I commenced with a little "lean-to" house 10 feet by 5 feet, under the roof of which I grew some good Grapes. I made it 6 feet longer and extended the Vine, and planted outside the front a Peach and a Nectarine tree, intending to enclose them; this I did, but the Nectarine died. I then extended the house another 17 feet, making it 33 feet long. I had now a piece 16 feet by 5 feet hung with Grapes, in front of this a trellis with a Peach on it, and a back wall 17 feet long by 9 feet high, on which I had a Fig and a Peach, with a Vine between on a long stem with its head above the other two. The Peach turned out a bad one, so I removed it and put in a Nectarine. This grew for a year or two without bearing, then died; the Fig wanted its way too much, so I rooted it up and put in another Vine; the Peach on the trellis in front, after taking a long time before it fruited, died, so that I determined to give up attempting to get fruit from trees planted out in the ground, as I had no trouble with some Peaches, Plums, and Nectarines in pots in the front border not occupied by the trellis, and take to trees in pots only, except for Vines.

It is, therefore, about fruit trees in pots that I wish to speak, as I am persuaded they are more suitable for the amateur than trees in the ground, unless he has large houses and his whole time to devote to them; but I am supposing that the amateur is, like myself, with only his early mornings and evenings to spare, and often from home all day, and that he does not keep a gardener or man servant of any kind, but has a jobbing gardener occasionally to do the heavy or dirty work.

I had now my house stocked with Peach, Nectarine, Apricot, Fig, and Plum trees, mostly in 11-inch pots. One Nectarine has been in the same pot for ten years, and has always ripened four dozen fruit of exquisite colour and flavour. A Plum has

been in an 18-inch pot for the same time, and with the same result. Last season I gave them both a shift, and I see there are about twenty dozen fruit set on each, which I must, of course, reduce to the usual four dozen. The great advantage in having pot plants is that they are under better control, can be turned round, can be removed and replaced by others in case of accident or blighting, so that the house may be always full of fruiting trees; but to enable you to do this you must have a few spare trees outside to replace any removed.

Now, as to the colour and flavour of the fruit, I believe it to be the fault of the operator either by not giving sufficient air, or by neglecting the trees at one time and over-petting them at another, or by over-cropping. I have found fruit never get soft or ripen when the tree is overloaded with fruit.

Again, watering must be attended to with judgment; during the growing period the trees must never be allowed to become dry, but they should not be drenched. The water should be of the temperature of the house, and during the swelling of the fruit have weak liquid manure with it (or, which is better, be watered through a good top-dressing of rotten dung), and take good care that the water supplies nourishment to the roots, instead of washing all the goodness out of the pot—a mistake often made.

I now come to the general culture of fruit trees in pots, and this will apply to Peaches, Nectarines, Apricots, Figs, Plums, Cherries, and Pears, for all may be treated alike; the two latter, perhaps, should be set out of doors to ripen their fruit, unless the house is very airy.

We will suppose there are no Vines on the roof, but that they are on the back wall, for reasons explained hereafter, and in order that the trees may have a full unobscured light; bear in mind that the trees cannot have too much light and air, and that all you have to do is to keep out frost. It is, I know, very tempting on a bright sunny day or two in March, or even in February, to shut in the sunshine, and enjoy the warm, dry air of the orchard house, when the wind is cutting from the north-east, but such a procedure will surely force the buds to expand prematurely, and the result will be a falling in the setting of the fruit.

Stocking the house is best done by purchasing trees that have been in pots three or four years, for if you buy maiden trees they will not bear well until the fourth year. I have invariably found this to be the case. I have taken a maiden tree—say in December, potted and pruned it as directed by Mr. Rivers; of course, it did not bear the next season, but the next I have had about two fruit, and the following year a good crop. It is here that amateurs think they fail, when the truth is, that the tree is not old enough to bear, and it must be remembered that a tree will not bear freely until the pot is full of roots. My oldest trees, which bear well, scarcely require any pruning, and very little pinching, and have the pots crammed with roots, so that it requires great care in the annual top-dressing not to injure them. But supposing the amateur makes his own tree by buying "maidens," potting and pruning them, as directed by Mr. Rivers, I advise him to stop them much more closely than Mr. Rivers directs, for it is so easy for a tree to become destitute of shoots near the centre stem, and very difficult to get shoots there afterwards. All stopped shoots are apt to break at the top, or ends, only; it is therefore, necessary to stop closer at first, when forming the shape of the tree. These trees need not be repotted until they show symptoms of making less young wood.

With the above treatment you cannot fail to have good-shaped and fruitful trees, and having obtained them my annual management is as follows:—

In the autumn, as soon as the fruit is off—I do not wait till the leaves fall—lift the pots, cut off all roots that have found their way out at the bottom of the pot, take from the surface all earth not filled with new roots, fill in and ram up the space with a compost of one-half stiffish yellow loam and one-half well-rotted manure, water well, and set the pot in the house again. Keep the soil moderately moist during the winter. I do not agree with Mr. Rivers in keeping them dry all that season; when I have done so the buds have invariably fallen off in the following spring.

I place my pots close together all the winter at one end of the house to make room for the Chrysanthemums, which blossom till nearly Christmas, and in the back border, about a foot wide under the wall, I have Russian Violets, which are removed in spring, as they are apt to harbour blight.

Nothing more will be required to be done till the following February, when the buds will begin to swell (I live in Hamp-

shire, and my house faces south-east). I then place the trees in their stations, letting each into the ground about half the depth of the pot, at the same time I give enough water to reach the bottom of the pot, unless the weather is very cold, in which case I defer the watering till the frost breaks up. As soon as I can detect the fruit buds from the leaf buds I prune, to keep the tree in a proper shape, if the pinching of the last summer has not done this; and here I may remark that I endeavour to give my trees a hexagonal shape, as it economises the space in the same way that bees do in making their combs, keeping them as high as the height of the front of the house will allow, which is about 4 or 5 feet. When the trees are in bloom I give them a sharp shake every day to distribute the pollen. When the shoots begin to appear I keep a sharp look-out after blight, and if a tree is affected I cover it with some light stuff and burn tobacco under it. This is best done by rolling tobacco in paper which has been previously soaked in a solution of saltpetre, but care must be taken not to scorch the tree, and it is best to remove the red-hot ashes as soon as the smoke is over.

This spring my family collected the lady-birds, and it is surprising how they have kept down the aphids; but the difficulty is to retain them in the house.

As soon as the fruit is set I begin syringing; at first in the morning only, and afterwards in the morning at 7.30, and in the evening at 5.30. This should be done upwards under the leaves.

As soon as the shoots have made five or six leaves I pinch them back to two, three, four, or five leaves, as I have occasion to form the shape of the tree.

When the fruit is about the size of a small hazel nut, I scrape off the surface earth in each pot, and give a good top-dressing of well-rotted manure 1½ or 2 inches thick. This I water till it is in a pulp, for two reasons—first, in order to settle it down, and secondly, to make sure that the ball in the pot is not left dry. This remains on until the autumnal top-dressing before mentioned, and once in about four weeks I give a table-spoonful of Standen's manure. This, with the top-dressing, insures a supply of nourishment to the roots every time the tree is watered.

As to watering no stated time can be given, the trees must not be allowed to want water. In some hot seasons they must have it every day, and in dull weather, perhaps not once a week. Experience only can guide us in this.

The next thing will be the thinning of the fruit; let this be done freely according to the size, strength, and age of the tree, and it is better to thin too much than too little.

I now come to a most important point—lifting the pots. Mr. Rivers gives the day of the month on which they should be lifted, but he may almost as well say on what day the fruit shall ripen, for the trees will not all grow alike, and at stated times. My own experience is, that the less they are lifted the better, for if a pot is not lifted often, the roots may strike so deeply into the soil that the check the tree receives in breaking off these roots is so great that the fruit is sure to fall. I had a proof of this a few years ago, when looking round the orchard house with the man I occasionally had to work in the kitchen garden. I happened to say, "It is time these trees were looked over to see if any require lifting." I was then called away for an hour or so, and on going into the orchard house I saw four or five trees drooping as though they were dying, and on inquiry I found the man had taken upon himself to lift every pot, tearing off all roots that had struck out of the pots, and the consequence was, that the fruit on those trees never became soft or ripened. On the other hand, if the pots are lifted often the roots have no chance of getting into the soil, so that I have come to the conclusion that it is better not to lift the pots at all after the fruit has commenced stoning; if the shoots are properly stopped there is not much fear of the trees growing too luxuriantly. With trees having no fruit on them the case is different.

There is now nothing more to attend to all the summer than giving air and water, thinning the fruit, stopping the shoots, syringing, and keeping off blight. To kill the aphids I have found nothing better than tobacco smoke, and to destroy the red spider the syringe is the best weapon. I have seen them feeding amongst sulphur apparently unconcerned, but I have never failed to keep them down with water. If, however, the trees are attacked by red spider after the fruit is ripe, the syringe cannot so easily be used, and one is obliged to let them have their own way a little, or run the risk of spoiling a few fruits; do not turn the trees out of doors after the fruit is off

the cold nights, heavy rains, and fogs, will prevent the wood ripening, but give the top-dressing of compost before described, and about a month or so after the leaves are off paint the trees—stems, buds, and all—with a composition of equal parts of soft soap, flowers of sulphur, slaked lime, soot, and powdered clay, adding water to make the whole of a sufficient consistency to adhere to the trees. This must not be syringed off; it is better than Gishurst compound, which if not syringed off, or if used too strong, causes the buds to fall.

I think I have now noted down all that has to be done to secure a crop of fruit on trees in pots, which I suppose to be in rows in the front of the house, and I need not say much respecting the vines on the back wall, except that they are to be kept there, and not allowed to trespass on the roof under any pretence whatever, as they will be treated in the ordinary way. I have found Grapes grown on a back wall very superior to those under the roof, and it is reasonable that they should be so, for they grow in full light, and out of all draughts; whereas those under the roof are always hanging in a shady and draughty atmosphere. The air of the whole house is also more healthy, being full of sunlight, and the back wall and ground absorbing the heat in the day, keep the house warmer at night; the roots of the vines also being inside are kept warmer, but must be watered the same as all other trees in the house.

My remarks mostly apply to the lean-to house, because I believe this to be the most suitable for the amateur, there is less danger from frost, and the back wall is better for growing Grapes. If I were asked to recommend a house I should say, Have a lean-to 8 feet wide, 4 feet high in front, and 9 feet high at the back. This will give room for two rows of trees in pots in front, a path, and a border about 1 foot wide against the back wall, let the glass go down to the ground, and let all the front open; this can be done with a rod and handle at one end, so that the lights will open all at once. Have the top ventilators in the highest part of the roof, and on no account have any openings on the north or north-east sides, as it is impossible to use them in the spring when the wind is in either of those quarters, but when top ventilation is often wanted on bright sunny days. Have no paving or flooring except the earth. Have all walls and woodwork as white as possible, and to have a little stove or something of that sort would be no harm, but do not use it unless the thermometer (kept inside) fall below 30° Fahr. in winter, or 30° when the trees are in bloom, which will rarely happen.

I will just add that being so well satisfied with my own success, I have this year added another 23 feet to my house, and I have put all the vines on the back wall, so that I have now on the back wall eight vines—viz., three Black Hamburghs, three Royal Muscadines, one Treutman Black, and one Tottenham Park Muscat. By the way, how is it that I never hear anything of this Grape? and I have never seen it in any catalogue except Smith's, of Worcester. It always ripens well with me, and is of excellent Muscat flavour; no doubt it would set and bear better with a little more heat, but I strongly recommend it to those who have not a Muscat house. Besides these eight vines, I have a Golden Champion coming on; in the front I have Peaches, Nectarines, Figs, Apricots, Plums, and Cherries—in all, thirty-two trees in pots, most of which are now overloaded with fruit; some of the Plums in 11-inch pots have twenty or thirty dozen each, also sixteen more maiden trees. I have likewise a row of Strawberries in pots close to the front lights, and numerous bedding plants, and no end of Lettuce and Mustard and Cress, so that there is not a bare place except the path.

In conclusion I will just say that when in my orchard house I am always doing something, and I would remind my brother amateurs that it is of no use to walk about in their orchard house with one's hands in one's pockets and pipe in mouth.

—AMATEUR.

GOOSEBERRY MAGPIE MOTH.—We are informed by a correspondent that the caterpillars of this moth (*Abraxa grossulariata*), have appeared for the first time at Carnoustie, N.B. He adds, "It seems to prefer the Gooseberry leaves, but is eating those of all the berry bushes. My own are now nearly all as bare of leaves as they were at midwinter, and what is worse, they have eaten the buds out to the heart of the branches, so I believe my bushes are of no more use. The caterpillar hangs itself by a thread when the bush is shaken. I have tried

hellebore, both infused in hot water and sprinkled in powder, without the least effect."

### THE MYOSOTIS DISSITIFLORA.

"A thing of beauty is a joy for ever;" but the joy cannot have birth until the beauty is seen, and one of our duties as cultivators is to increase the number, and widen the area of all kinds of beautiful plants and their arrangements. This is just how I have endeavoured to be faithful to this thing of rare and marvellous beauty, the *Myosotis dissitiflora*. From one tiny plant it has been multiplied into thousands; from a mere broken deck of blue it has opened out into bold patches and long lines, and laid them softly, tenderly, lovingly down upon the earth, to the delight of all eyes. No other description can be so true to actual fact as a comparison of the Forget-me-not in full flower to the heavens at their bluest and their best. This *Myosotis* is not only different from all others, but better than any other. Were this not true I would not have troubled you nor your readers about it.

I can assure your readers that this *Myosotis* is not another of the same as *sylvatica*, for instance. Now I am not about to disparage *M. sylvatica*. It is a beautiful flower, generally a month, six weeks, or even two months later than *M. dissitiflora*. It is a first-rate kind to succeed it, to those who care to have a second. It grows freely, self-sows its seeds, like a weed, and once you get it there is no danger of losing it. But a child or a man half blind could distinguish between *M. sylvatica* and *dissitiflora*. The plants can be picked out from among each other in almost any stage, from the cotyledon period upwards. The habit of *M. dissitiflora* is wholly different. It differs from *sylvatica* in the length and strength of its flowering stem, its graceful bending habit, the form of the raceme of flowers recurring much further towards the stalk at the end. The racemes are also much longer. The pedicels or cup stalks are longer; the beautiful cup, with its yellow eye, and white pencilled eyebrows, is also larger than in *sylvatica*, and the flowers are set much further from each other, and of a different hue of colour. Hence the name assigned to it by Mr. Baker is most appropriate. The entire habit is much looser than *sylvatica*, and as a rule the plants when well grown will have as many again or more flowering stems. The leaves are wider from the first, and it is not unusual to find them at least double the size of *M. sylvatica*; in fact, the two are so distinct, that no grower need confound them. And they are not only different—that I should consider a small matter—but *dissitiflora* is immensely superior. I have grown both in thousands, and this enables me to write with authority.

This Forget-me-not is a good grower in most places, and under fair treatment, but while the major portion of the stock will grow to your entire satisfaction, a certain, mostly a small portion of it, will not grow at all. The flowers change into a deep purple, the leaves become small, the flower stems weak and short—in one word, the plants look "miffy," and nothing can make them grow. For some years I was sanguine that this one blemish could be removed, this only evil remedied. I endeavoured to stamp it out by the immediate destruction of every stunted plant. I have not been wholly successful; however, the per-centage of these short blushing beauties is reduced, but they still manifest themselves, and I fear always will. The first blossom of *M. dissitiflora* in cold weather is mostly deeply suffused with pink, but this vanishes with the fine weather, and is dyed into blue. Short, stunted flower stems are mostly concomitants of purple flowers. These also vanish and run into full lengths as the air becomes warmer and more genial. Not that *dissitiflora* is at all tender, far from it. The biting March wind brings the bushes into its cheeks, and when the wind falls, or the biting air ceases, to heat coldly against them, the natural complexion returns. The change of colour from mere stress of weather is a harmless and very different matter from the change that results from weakness or disease. The latter, however, is not a very formidable affair. The plant must be taken for better or for worse. There is but little of the latter quality about it, and what there is should be provided against by keeping a good reserve of plants; then, as soon as any plant shows the stunted habit, out with it, and in with a fresh strong one. In this way masses may be preserved complete, and lines kept full and unbroken.

I do not profess to be sufficient botanist to say in what *dissitiflora* differs, or whether it differs at all from *M. alpestris* and *M. montana*; but this I can say, that whether it is identical with these two or distinct from them, *dissitiflora*

\* It is only another name for Muscat of Alexandria.—Eds.

is very different from and superior to sylvatica, and that I have not yet met with any other variety half so beautiful. I am thus emphatic upon this point, because so many seem to confound dissitiflora with sylvatica. I have had seeds of it sent to try several times, and every one of them has come up sylvatica, neither less nor more. With us *M. dissitiflora* has been slow to seed. From some thousands of plants I have not yet been able to save any seed, but I am trying on a different plan this year and hope to ripen some. Others report that it seeds freely. There seems to be no doubt that it will come perfectly true from seed. All our stock has been raised from a single plant; and no plant can be more rapidly increased by cuttings and division. As soon as the plants have finished their first long spell of beauty, about the end of May, we take them up, divide them into fragments, and replant in fresh good ground. About July we take them up again, divide, and replant in fresh ground as before. If short of stock and to insure a succession of bloom, part of the plants will be again divided early in September, and part left undisturbed. The latter will form tufts 1 foot or 18 inches across by the middle of November, and will be knotted for flower. A dozen or ten of these should be potted or placed in a cold pit, or on a conservatory shelf. If the latter, they will be in flower by Christmas or the new year, and impart a fresh charm to this department, such as no other plant can give. They will bear moderate forcing well, if placed near the glass. A temperature of 50° to 60° suits them admirably. Fresh batches may be brought in once a month, and thus *Forget-me-nots* in pots will be furnished for the drawing-room or conservatory from December to May.

The main stock should be transferred to their flowering quarters in November. Every plant that looks different from, or the least weaker than, the others must be rejected. If any manifest a stunted habit after being planted, away with them at once, and replace with perfectly healthy plants from the reserve stock. By such means the ground will be covered by the flowering season with plants all alike healthy and strong. The time of flowering ranges from January to April. We have had them flowering in January, setting off with their azure carpeting the silvery sheen of the Snowdrop. Last year they were beautiful in February. This season it was the end of March before they did much; in fact, this has been the most trying winter we ever had for this lovely *Forget-me-not*, and nearly all other spring flowers. The long winter, with its heavy cold rains, and sudden frosts and thaws, tried its constitution to the very utmost. The season set upon our plants like a nightmare. The fattest ones succumbed to the repeated blows of cold and rain to which they were exposed, and hereby hangs a warning.

This *Myosotis* likes good treatment, but cultivation must not be pushed into grossness. The tufts a foot across had their centres blackened out by the frost. The rain drops rested on their fluffy cushions of leaves, and invited the frost to come in and sup on the succulent plants beneath. The moderate-sized plants, or those that were divided late in September passed through the winter unscathed, and so, also, did most of those raised upon mounds and sloping banks. The unevenness of the base lines pitched off the water from the leaves, and the plants were prepared in consequence to withstand the cold. The slightest shelter, such as that afforded by an overhanging twig, was likewise found sufficient to protect the plants from injury.

Though I am thus particular, the plant is by no means tender. After growing it for eight years, this is the first season I have ever seen the middle of the strong plants struck out by the frost. The plant is a native of the Alps, and does not seem at all to mind cold. It flinches on heavy soils from an excess of wet, and if wanted to flower early and in massive profusion without a flaw, it is well worth all the attention here prescribed, and a thousand times more. But the plant will live and grow and look better than any other *Forget-me-not* under the same treatment. It is not fastidious as to soil, nor dainty in the choice of a site. As to mere cold, it is the hardiest *Forget-me-not* with which I am acquainted. When other varieties are asleep in or on the ground, like sylvatica, or hiding away from the scathing blast under the water, like palustris, this gem is hugging the snow to its azure bosom, nor does it shrink from the shivering embrace. It laughs at the driving storm, and defies its power. If prostrated beneath a snow reef, or beaten down to the earth with splashing rain to-day, it is up again to-morrow. The wind tries to wither, the frost to freeze up, the rain and the hail to dash down its beauty, but all in vain. It bends its beauteous slender

head to the blast, and rises again with dignity and grace as soon as the storm is past. First and best of all blue spring flowers, it lasts the longest. I have said it may come in January to wait for or welcome the Snowdrop, or support the golden Aconite with its glorious complementary colour, or arrive to gladden the Christmas Rose before it sinks to rest in its wintry grave. I now add it may be gathered continuously until December, when the griding wreath of *Forget-me-not* that has tied all the months together in a true-lover's knot shall be made up afresh and worn as before.

To ensure a continuity of these charming blossoms, take the strongest cuttings of the flowering plants in March, and strike them in a cool close frame. About the middle of April plant them out in rich ground, at distances of 1 foot by 18 inches. These plants will begin to flower finely in June, and follow the successional spring batches. A second lot of cuttings may be put in in May, a third in July, and if the second are planted in June in a shady place, and the third in August in a warm situation, *Forget-me-nots* in plenty may be enjoyed until the pot plants come in in December and January. If your readers think these two or three propagating too much trouble to take for such a prize, then plant the latest spring plants in rich soil, cut off all the flower stems as they fade, top-dress the roots, peg down the strong shoots, and water freely, and flowers may be gathered from the same plants all the summer; in fact, this *Forget-me-not* under high culture is a perpetual bloomer. It is neither an annual nor a biennial, but a hardy perennial. I have a plant seven or eight years old, and it is nearly always in flower. At no other season, however, must we expect such a rich flush of beauty as in the spring months. From February to May inclusive is the hey-day of its strength, the harvest-tide of its glorious beauty. The same plants will flower fully and freely throughout that long period; but with June the flowers will become fewer and smaller, and so of the succeeding months. Let me illustrate by an example. Many of your readers may know the two *Brugmansias*—*atrovirens* and *snaveolens*. The former flowers continuously, and the latter by fits and starts. A large plant of *B. atrovirens* may have fifty flowers open at once, and *snaveolens* may have, has had, two thousand. The latter is the emblem of this *Myosotis* in the spring tide, the former of it during summer, autumn, or winter—always in flower, but never so richly fully suffused with beauty as in March, April, and May. Still it is much to have always enough *Forget-me-not* at hand for bouquet and vase work.—D. T. FISH, F.R.H.S.

## ROYAL HORTICULTURAL SOCIETY.

JUNE 8TH.

THIS was the day of the Society's great London Show; a more propitious day there could not have been. Time was when the Society was noted for its bad fortune in respect to weather, but this season it has hitherto been singularly fortunate. A finer day it could not well have had; rather sultry, it is true, very hot in the conservatory, and even in the arcades, in the latter somewhat dusty notwithstanding all the preventive measures, but out of doors just enough of breeze to render the heat endurable. The conservatory was crowded, the arcades were crowded, and the lawn around the bands, where ladies love to congregate, was crowded too. It is, however, more especially our duty to speak of the exhibition in a horticultural point of view, and in a horticultural point of view nothing could be more satisfactory. It was, in fact, a very extensive show, and the quality of the subjects exhibited was not merely good, but excellent, and that in nearly every one of the numerous classes in which they were shown.

Orchids came first in the schedule, and of these there was the finest bank exhibited this season, filling alone one-fourth of the staging in the conservatory. Class 1 was for alone, and the first prize was taken by Mr. Denning, gardener to Lord Londeshborough, Grimston Park, with one of those splendid collections which place him in so high a rank among Orchid-growers. This consisted of a large basket of the brilliant *Epidendrum vitellinum majus*, *Dendrobium MacArthurii*, a fine *Odontoglossum niveum*; *Cattleya Warneri*, very fine; a beautiful specimen of *Laelia parviflora*; *Dendrobium crystallinum*; *Psephenocoryna*, with three flowers; a large *Acidalia odoratum* with fifteen spikes, and *Acidalia affinis* with nine spikes. Mr. Barrett, gardener to W. Terry, Esq., Peterborough House, Fulham, came second with a splendid pan of *Cypripedium barbatum superbum*; the yellow-flowered *Oncidium sessile*, blooming very freely; *Saccolabium Reebii*, with one fine raceme; a fine specimen of the bright-coloured *Saccolabium ampullaceum*; *Cypripedium Stoeckii*, with a branch bearing five flowers; *Vanda tricolor*, *Laelia parviflora*, and *Cattleya Mossii*. Mr. Ball, of Chelsea, who was third, had, among others, *Odontoglossum citreum* and *O. citreum roseum*, the latter beautifully tinged with lilac, and three *Lilias*.

Class 2 was for six Orchids, and nurserymen only. The first prize



Messrs. Rollison, Tooting, had a fine miscellaneous collection of Palms, Hestias, Orchids, Glorinas, and a variety of other plants, including Tillandsia splendide, a brilliant-coloured species. Mr. Bull sent also a fine collection, in which were Godwinia rigas, a singular plant, of which an account will be found in our last volume, many Palms, Ferns, Orchids, and other plants. From Messrs. Veitch came a rich collection of Orchids, numerous hybrid Nepenthes, very ornamental for hanging-baskets, the lovely Masdevallia Veitchii, Cattleya lobata, Anguloa Clowesii with fourteen flowers, Leilias, Palms, and many other plants—altogether a magnificent collection. Lastly, Mr. Tibbles, gardener to A. Haines, Esq., sent six pans of Lycopods, beautifully grown, and, after so much colour as that presented in the conservatory this day, delightfully refreshing to the eye.

# FRUIT.

The show of fruit was tolerably extensive, and for the most part excellent in quality.

In Pine Apples, the first prize went to Mr. Ward, gardener to T. N. Miller, Esq., Bishop's Stortford, for a magnificent fruit of the Ripley Queen weighing 6 lbs.; and the second prize to Mr. J. McLean, gardener to W. P. Herrick, Esq., Beaumanor Park, Leicester, for a Smooth-leaved Cayenne weighing 6 lbs.

Grapes, the first prize for the best Black was awarded to Mr. Douglas, Loxford Hall, Hford, for good examples of Frankland, the bunches were large and very fairly coloured. Two equal second prizes were awarded to Mr. W. Davis, New Lodge, Whetstone, Middlesex, and Mr. G. Thomas, Turner Road, Lee, Kent, for smaller but very compact and highly-finished examples of Black Hamburgh. Mr. Bannerman, gardener to Lord Bagot, Blythefield, Rugeley, made a very good third; and Mr. Lynn, gardener to Lord Boston, Hedsor, Maidenhead, received an extra prize for excellent examples of Black Prince. Another extra prize was awarded to Mr. W. Davis for a large and fine basket of Black Hamburghs.

In the class for White Grapes, the first prize was awarded to Mr. Douglas, Loxford Hall, for exceedingly fine examples of Blackland Sweetwater, the bunches large and the berries beautifully coloured. The second prize was awarded to Messrs. Standish for small but well-ripened examples of Muscat of Alexandria; and the third to Mr. Miles, gardener to Lord Carrington, for fine bunches of Foster's White Seedling.

Messrs. Standish exhibited three small but very perfect examples of Royal Ascot, perhaps the finest examples as regards bloom and finish in the Exhibition.

In the class for Nectarines, Mr. Lynn was awarded the first prize for very fine Violetta Hative. The second went to Mr. Miles; and the third to Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall.

Figs were well represented. The first prize was awarded to Mr. Miles for Brown Turkey; the second to Mr. Fairbairn, Sion, for the same and the third to Mr. Douglas, also for the same variety. Mr. Lynn, and Mr. Middleton, gardener to Sir W. W. Wynn, Bart., Wynn-stay, also exhibited good dishes.

The Strawberries were good. The first prize was awarded to Mr. Douglas for truly magnificent examples of British Queen; the second to Messrs. Standish for nearly equally good La Constante; and the third to Mr. E. Clarke for Sir C. Napier. Some good dishes of Dr. Hogg were also shown.

Of Cherries only two dishes were exhibited, the first prize going to Mr. Miles for very excellent examples of Black Circassian.

Green-fleshed Melons were largely shown. The best examples being staged. The first prize was awarded to Mr. Douglas for Loxford Hall Hybrid Cashmere, a pale green and yellow netted variety; the second went to Mr. Lynn for a golden Hybrid Cashmere; and the third to Mr. Clark for Queen Emma. In the Scarlet-fleshed section there were nine competitors. The first prize was awarded to Mr. Douglas for a Scarlet-fleshed frame Hybrid Cashmere; the second prize went to Mr. H. Barnard, gardener to Miss Harrington, Worden Hall, Preston, for a small Scarlet Gem; the third prize was awarded to Mr. Miles for Scarlet Gem.

Mr. Ross, gardener, Welford Park, Newbury, exhibited four dishes of well-preserved Agnes-viv White Nonpareil, Scarlet Nonpareil, Reineette du Canada, and Herefordshire Pearmain; also a dish of Beurre de Rance Pears.

It is worthy of remark that in this altogether splendid exhibition of fruit, divided into ten classes, no less than five of the first prizes were awarded to Mr. Douglas, the very able gardener at Loxford Hall. Such success is extremely creditable.

FRUIT COMMITTEE.—George E. Blenkins, Esq., in the chair. Mr. Tilley, gardener to His Grace the Duke of Portland, Welbeck, sent a beautiful dish of Black Circassian Cherries, which were of excellent flavour, and a dish of Royal George Peaches, large and of most excellent flavour. For these a special certificate was awarded. Mr. Tilley also sent examples of Calville Blanche and Reineette Grise Apples of the growth of last season. Mr. C. Turner, Royal Nurseries, Slough, sent a dish of Frogmore Early Black Cherries, beautifully ripe and of

excellent flavour, from a tree grown in the open air. These were highly commended by the Committee as a valuable early variety.

Mr. Hill, gardener, Keele Hall, sent examples of Lady Doulton's Seedling Grape, crop of 1869, which had been preserved in a bottle of water after the French method. The berries were somewhat shrivelled, but the flavour was still rich and good, and considered superior to nicely-ripened fruit of the same variety which accompanied them. A special certificate was awarded. Mr. Reunie, gardener to C. W. Melon, which seemed identical with Gold Perfection. Mr. Jack, gardener, Battle Abbey, Sussex, sent a seedling Melon of the Persian class, which proved of bad quality. Mr. E. C. Clarke, gardener to J. C. Brown, Esq., Holmsh-b House, Horsham, sent a seedling Scarlet-flesh Melon, which was of no merit.

Mr. Temple, gardener to the Earl of Aylesford, Packington Hall, Coventry, sent two enormous fruits of a variety of Lofia, named Sooly-cay. These were nearly 3 feet in length, and 18 inches in circumference, resembling huge Cucumbers, to which family they belong, although quite unpalatable, and only fit for cultivation as an object of curiosity. As a remarkable vegetable production they received the commendation of the Committee. Messrs. Carter & Co. exhibited large and beautiful examples of White Naples Onions, grown at Naples. These were exceedingly solid and beautiful. A special certificate was awarded. Messrs. Carter further sent examples of Musselburgh Leek. J. W. Macklin, Esq., National Provincial Bank, Shaftesbury, sent examples of Rharbar, stated to be of a very superior quality. Of this, however, the Committee could not judge. Mr. Miller, Workshop Manor, sent some examples of white Cos Lettuce.

FLORAL COMMITTEE.—Rev. J. Dix in the chair. The subjects shown on this occasion were numerous, and the awards more than usually so.

Messrs. Veitch had first-class certificates for Cypripedium Domini-anum, one of the hybrids raised by that indefatigable and skilful hybridist, Mr. Douglas, the parents being C. esadatum and C. Pearcei; for Alabastrum sessilifolium, a charming form; for Arabis Veitchii with leaves divided almost to the petiole, and consisting of a lid besides the principal nerve of each division; for Paulownia Veitchii, beautifully striped with white; for Nepenthes Seleni, another hybrid noticed a week or two ago; for Dieffenbachia Bowmanii; for Gloxinia Alice, a beautiful purple-flowered kind; for a climbing plant, name unknown, with fragrant, whitish, pendulous flowers.

Messrs. Rollison sent a large collection of Palms and other plants, of which Korthalia robusta, Bactris maritima, two ornamental Palms, and Gloxinia Alice received first-class certificates. Mr. Bull likewise sent a large collection containing many Palms, of which Geonoma elegans, very graceful; G. speciosa; and Wolkeia regia, received first-class certificates; the same award was also made for Pandanus decorus, Cyrtas Armstrongii, and Anacardium occidentale.

Mr. Cripps, Tanbridge Wells, had a special certificate for a splendid collection of Clematis, of which Syph. large and very beautiful, white, tinged with lilac, and with a white band in the centre of the petals had a first-class certificate.

From Mr. William Thompson, of Ipswich, came a Liliaceous plant, named Brodiaea cochinea (Asa Gray), from California, with pendulous crimson stamens, and greenish white flowers; there was some doubt as to its being a Brodiaea, but none as to its beauty, and it received a well-deserved first-class certificate. Similar awards were made to the same exhibitor for Leptochloa rosea, a lovely hardy Californian annual; and for Delphinium nodicaule with red flowers. Mr. Cannell, Woolwich, had a first-class certificate for Pelargonium Master Christine, a pretty free-flowering pink variety, with a light eye, and to all appearance it will be most excellent for bedding.

Mr. Turner, of Slough, sent a number of new Pelargoniums, Show and Fancy, among which were several very fine kinds, difficult as advanced to be with certainty. First-class certificates were awarded to Admiration (Foster), lilac rose; white throat, dark shading off to scarlet, and edged with rose; to Charlemagne, soft and beautiful in colour; to Duke of Cambridge, distinct, but less pleasing; to May Day; to Syren; and to Iron Duke, the last rose with a violet tinge, a white throat, and dark upper petals.

Messrs. Hooper & Co., Covent Garden, had a silver-edged Try-leaved Pelargonium called Mrs. Lambert, but not so good as others already known; and Messrs. Carter & Co. exhibited Lotbario, a sweet-scented leaved hybrid Pelargonium, with bright rose-coloured blotched flowers, appearing very free flowering.

Mr. House, of Peterborough, contributed a small plant of Stephanotis floribunda in 48-pot, to show how well it could be flowered in a small pot for decorative purposes in rooms, and the plant bore enough blossoms to put to shame some specimens in large pots.

Mr. Shepton, Biggleswade, sent seedling white Pink Flower of Eden, which received a first-class certificate. Mr. Green, gardener to W. Wilson Saunders, Esq., had a similar award for Gonzoza portensis, with singular flowers having a yellowish lip, that which appears to be the lip being the column. Mr. Williams, of Holloway, had first-class certificates for Masdevallia infrenata with horned purplish flowers, and a fine variety of Cattleya Mossii called Margaret; and Mr. Denning, gardener to Lord Leadenborough, a special certificate for Aerides maculosum, very pretty.

GENERAL MEETING.—S. Rucker, Esq., F.R.S., in the chair. Several new Fellows having been elected, and the usual announce-

ment of the Committees' awards having been made, the Rev. M. J. Berkeley said that the large Cucumber referred to in our Fruit Committee report was no doubt some species of *Luffa*, the fibres of some of which were utilised in the East for sponges and making hats. Some were poisonous, but he believed *L. acutangula* was not so when young. He then alluded to the prevalence of mildew among Peaches and Nectarines, and the fact of the glandless-leaved Peaches escaping, and those with glands rarely suffering from it. It was a singular fact that, though the Noblese, which has glandless leaves, is notably subject to mildew, yet seedlings from it which have glands enjoy comparative immunity. It was a curious physiological fact, which, as yet, had not been accounted for. Mr. Berkeley then pointed out the most remarkable of the Orchids, of which Mr. Bateson had sent him some notes, the latter gentleman remarking that such Orchids as even *Mastodonia Veitchii* would not stand being exhibited along with the brilliant *Anthurium Scherzerianum*, and he deprecated mixing Orchids with other plants. A plant of the Peruvian Amaranth, and a curious example of Mrs. Pollock *Pelargonium* reverting to the plain-leaved form, brought by Mr. Reeves, were then pointed out; and with reference to the latter, Mr. Berkeley said, in instances he had met with, not only the leaves, but the flowers were changed. A basket of variegated *Abutilon megapotamicum* from Messrs. Downie & Co., showing that in three series of propagation the variegated character of the leaves had not altered, and an ingenious French fly trap, highly approved of by Mr. Barron, were next noticed.

The proceedings closed with the Chairman announcing that the next meeting would be held on the 29th inst., when the Rose show will also take place.

#### MR. ANTHONY WATERER'S RHODODENDRON SHOW.

In addition to the great attractions of the great Show, just reported on, the large tent, which is every year filled with a splendid collection of Rhododendrons by Mr. A. Waterer, of Knapp Hill, afforded a beautiful display of these gorgeous-flowering plants; and this despite the excessive drought which has of late prevailed. A great drawback it has certainly been, but the Show, which will continue for some days, is one well worth a visit, and we shall have more to say of it next week.

#### PELARGONIUM BAYARD.

As a raiser and grower of Zonal and Nosegay Pelargoniums, I may, perhaps, be allowed to say that my experience agrees generally with that of Mr. Peach as to the merit of the varieties he describes. I do not understand Mr. Peach to condemn Bayard, he only states his experience with it. With me it has always been first-class, both in and out of doors, and I have never hesitated to declare this when opportunity offered.—Wm. PAUL, *Paul's Nurseries, Waltham Cross, N.*

#### THE DEPARTMENT OF AGRICULTURE, WASHINGTON.

[Many authorities condemn governmental interference for the promotion of the arts; other authorities are as decidedly in favour of such promotion, and in America we think it is needed. There all the population is comparatively of recent settlement, and every year adds hundreds of thousands of new settlers. Such a population has to devote itself to bread-winning. Those cultivating the soil have neither time to spare, nor capital to risk, for testing which are the best varieties of fruits and grains and other vegetables to cultivate, nor for experimenting to decide on the best modes of cultivation. For such a population its government may beneficially aid in ascertaining those facts so desirable to be determined. The American Government have established a department for the purpose, and we place before our readers a drawing of its offices, and an extract from the Commissioner's Report.]

THE new building of the department is 170 feet long by 61 feet deep, and consists of a finished basement, three full storeys, and Mansard roof. Designed in the *renaissance* style of architecture, the front presents a centre building with main entrance, flanked by projecting wings. The material is pressed brick, with brownstone base, belts, trimmings, and cornices. Walking over a flight of swelled granite steps, the visitor passes through the main door, of oak and ashwood, into an octagonal vestibule 20 feet in diameter and 16 feet high, the floor of which is laid with rosettes and borders of encaustic tiles, and the sides panelled in encaustic paint. The ceiling is decorated with fresco work, around a centre representing an arbour of Vine foliage, and held by American eagles with spread wings; arabesque ornaments are sprung with four medallions illustrating, in turn, by landscape, light effect, and human figures, spring, morning, and childhood; summer, noon, and youth; autumn, evening and mature age; winter, night, and old age.

Around a wide corridor, similarly finished, but in plain style, are grouped office rooms of 20 by 20 feet in size. The reception room is chaste decorated, while the chief clerk's room is finished with an apparently solid moulded and panelled wainscot in curly walnut, mahogany, and maple, covering the height of the side walls, surmounted by a frescoed stucco cornice and a ceiling in complementary colours. The wainscot is a specimen of "American wood-hanging," which is an application of wood to the plastered walls. The wood is prepared in strips of different lengths, of about the thickness of paper, and is placed upon the walls by paper-hangers. The adjoining office of the Commissioner is done in the same material, but in a higher style of the art, the panels of rich bird's-eye maple being bordered by friezes of mahogany and blistered walnut, alternating with fancy panelled pilasters in mahogany and satin wood, all parted by curly maples and set off by gilt edges. This series of rooms is completed by the private office of the Commissioner, finished in plain library style, with friezes of birch, borders of black walnut, and panels of mountain ash. The rooms for clerical purposes are finished in plain encaustic oil paint, with frescoed ceilings, all in different colours. The western end of this story is occupied by the library, which is furnished with mahogany cases; and a suite of rooms on the eastern terminus is devoted to laboratory purposes, where all cumbersome apparatus is dispensed with; and an ample supply of gas furnishes the modern heating power.

A double flight of fire-proof stairs, of wrought and cast iron, in the centre of the building, and opposite the vestibule, lit by a grand window glazed with stained glass, leads to the second story, the main or central part of which is appropriated to the Museum of Agriculture, a hall 102 feet in length, 52 in width, and 27 feet high. There are three large entrance doors, of 6 by 12 feet, of artistic design. The size and style of the ten windows, each 7 by 16 feet, partake of the character of the modern exhibition palaces. The hall is crowned by a bold coved stucco cornice, the lines of which are broken rhythmically by heavy brackets, in the sculpture of which colossal Indian busts form prominent features. The ground cove itself is adorned by a chain formed of festoons and groups of flowers and fruits, with medallion shields, into which the escutcheons of the United States, surrounded by those of the thirty-seven States of the Union, in chronological succession, are worked. The ceiling is divided into fifteen heavily moulded panels, the centres of which are occupied with rosettes conforming with each other in general outline, but having distinct details. The colours of the hall are in neutral tints, which are diversified mainly by the heraldic colours of the escutcheons. The furniture of the hall consists of elegant glass cases, with solid dust-proof walnut frames, surmounted by architraves, friezes, and cornices, bearing carved volutes, with intermediate vases and busts. Perhaps the most noticeable piece of furniture is the redwood table, the top of which, 7½ by 12 feet, is formed from the largest plank in the world, sent to the department from California.

At the western terminus of the museum are located the working rooms of the entomologist, and a room of extra size, containing in walnut cases a valuable herbarium. At the eastern terminus of the museum are the rooms of the statistician.

The third story of the building contains rooms for miscellaneous purposes, assorting and putting up seeds, &c., and is in direct and easy communication with the basement.

For the purpose of preventing dampness in the walls, a water-tight concrete walk closely surrounds the building; opposite the principal front this concrete surface is 50 feet in width, the entire length of the building, thus giving ample room for the approach and departure of carriages. The space in front is laid out as a strictly geometrical flower garden with architectural appendages, such as vases and statuary. It is divided by a terrace wall, to be ornamented with stone balustrades and pedestals for the reception of plant vases; communication with the lower garden being provided by stone steps, the whole forming a proper arrangement for the harmonious connection of the building and its surroundings. This connection is maintained at the ends by trees, but the immediate front will be kept open, thus avoiding the common error of preventing the building from being viewed as an architectural design, a fault painfully apparent in many fine structures, in which beauty of their architectural features is wholly lost by dense trees and shrubbery.

The plant houses are located west of the department. The design includes a range of glass structures with a front 320 feet in length by 30 in width. These include apartments for the culture of exotic fruits, of which a collection is being formed for a complete series of the Citrus family (a class of fruits now

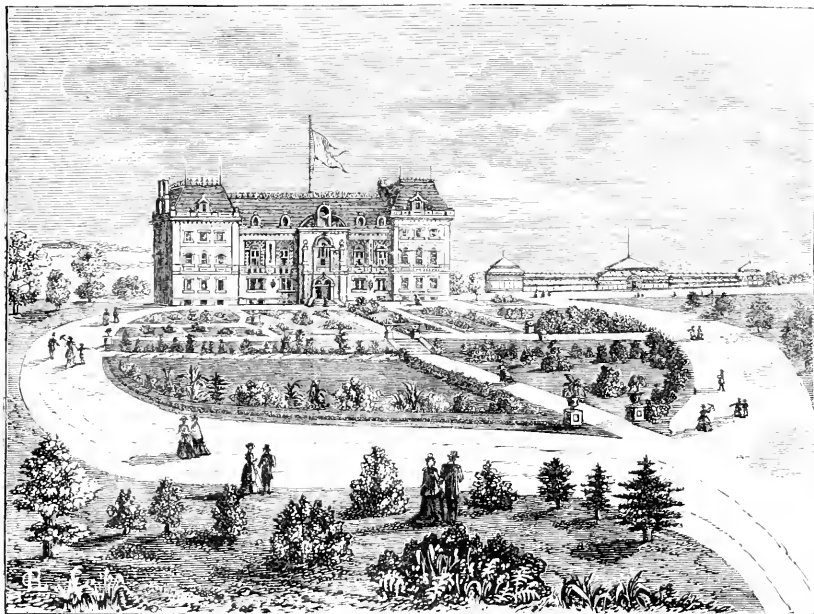
extensively produced in Florida, and other Southern States, of which family several fine varieties of Oranges and Lemons have already been introduced and propagated for trial), and for an extensive collection of medical plants; also those furnishing textile fibres, useful gums, sugars, and dyes. Structures for orchard houses, cold graperies, and other purposes, are to be extended in the rear; the entire design forming a compact and economic arrangement especially adapted to the various purposes contemplated in its erection.

The largest portion of the enclosed area upon which the building is located is appropriated to an arboretum, a collection of hardy trees and shrubs. While these are planted in accord-

ance with a botanical system, each order of plants being united, yet the landscape effect has been carefully studied, thus producing a combination altogether novel, that of forming pleasure-ground scenery, and retaining a strict systematic classification of the trees and shrubs employed in producing it.

About ten acres are set apart for experimental purposes, for testing species and varieties of small fruits, seeds, and for the culture of hardy plants.

Much time and attention have been given to the improvement of the grounds of the department. The flower garden in the main front of the building is completed, with the exception of the architectural terraces. The principal avenues and



walks are rapidly approaching completion. Draining has been effected as far as means will allow; much, however, of this fundamental work remains to be done, as the ground is largely underlaid with a retentive subsoil. For purposes of protection and shelter, an Osage Oak hedge has been planted round the boundaries of the enclosure.

About three-fourths of the list of plants have been secured, and preparations for planting are now in progress, so that, when the proper season arrives, no delay may occur in placing each plant in its assigned position. The space allotted to each

plant is computed so as to allow full development of growth for the period of forty years, so far as data have been available in deciding upon the respective dimensions each may assume. Alterations as indicated by progressive development, can, to a great extent, be effected for many years to come, without interfering with the main design, and, in view of the novelty of the arrangement, such modifications may become necessary; but it is believed that there will be but few changes to make in the present position of the plants.—(*Boston Cultivator.*)

#### SEA-SIDE PLANTING.

I THANK your correspondent, Mr. Owen, for his communication at page 371 on sea-side planting, and hope some one else will supplement it by further information; or perhaps Mr. Owen will give his opinion on other shrubs and trees, mentioning those which grow badly, as he has done in the case of the Rhododendron and Larch. Information of this kind is invaluable to those who, having lived mostly inland, are called on to superintend the planting and arranging of grounds near the coast, and who, in the absence of all knowledge of what plants are suitable for such a place, are very liable to make serious mistakes.

Although I hope Mr. Owen's list of plants succeeding near the coast will be increased, yet other considerations ought not to be lost sight of, and these are soil and situation. Mr. Owen justly points to these as likely to influence the well-being of

the plants made use of quite as much as the sea air to which they are subjected. This matter has, I think, hardly received the attention it deserves, yet a very slight inspection of the different sites that may require to be clothed or embellished with trees and shrubs will show that materials which answer well at one place can hardly be expected to do so at all. For instance, the coast of North Wales, which I take to be rocky, with a soil in a great measure formed by the decomposition of the strata these rocks consist of, must differ widely from the soil which overlies the chalky cliffs of the south-eastern coast, or the low, flat shores of the eastern counties, and it cannot be expected the plants which would flourish in the one case would do equally well in the others. Soil and altitude unquestionably exercise some influence, as well as the sea spray. If those who have had experience in the management of trees

and shrubs by the sea coast in other parts of the country would emulate Mr. Owen in recording what they have noticed, much useful information might be elicited. The chalky cliffs of Dover present a different class of wild plants from the rock-bound shores of Cornwall, and the sandy coast of Essex differs materially from both. These conditions ought not to be forgotten when planting is contemplated.

I have not had so much experience in sea-coast planting as to justify my giving so decided an opinion as those who have resided near the sea, but assuredly the *Laurestinus* might be put down as one of the shrubs that might in many cases be tried. I have seen it thriving within a stone's throw of salt water in Cornwall, also on the north-east coast; but in the most exposed places I have visited deciduous trees and shrubs only are allowed to grow, and I never recollect meeting with a good Holly or common Laurel in such a position, although now and then a Portugal Laurel struggles for an existence with a better result than any of the Spruce Fir or Cypress tribe that I have seen. *Pinus Mugho* presents a more lively green than the common Scotch Fir, but the Beech, Birch, and tree Willow had a miserable aspect wherever I met with them. Possibly, however, the Beech may do better on chalky cliffs.—J. ROBINSON.

### NEW BOOK.

*Mushroom Culture, its Extension and Improvement.* By W. ROBINSON, F.L.S. London: Warne & Co.

This is a volume of 172 pages, of which about one-half are devoted to the culture of the common garden Mushroom, and the rest to descriptions, figures, and modes of cooking other edible Fungi found wild in this country. It is a volume which we may characterise in the phraseology of the present day as being "well got up"—that is, the paper is thick, the type well spaced out, and the binding tasteful.

On taking up the volume, we were impressed with the great importance the author appears to have attached to the cultivation of the Mushroom in having made it the subject of a work produced at so much evident expense as this is. We have seen treatises at once practical and exhaustive, by competent hands, in modest brochures at a cost rarely exceeding a shilling. Old John Abercrombie handled the subject somewhat in this way, and his successors have not, that we are aware of, exceeded him. Mr. Loudon occupies about ten pages of his "Encyclopedia of Gardening," Mr. Thompson four, and Mr. McIntosh in his "Book of the Garden" fourteen pages. The book commences with the names of places "where Mushrooms may be grown," and these we may sum up by saying that Mushrooms may be grown anywhere, even in a flower pot, as we have seen them and grown them, or in an old shoe.

Chapter I is devoted to Mushroom houses, of which there are various designs adapted in cost to suit the pockets and requirements of all classes of Mushroom growers. On this subject we shall not quote from Mr. Robinson, but from an article in our own pages by one of the best and most extensive Mushroom-growers in the country:—

"Better Mushrooms can be grown without fire heat than with it, and a continuous supply kept up throughout the coldest winters. Then, if it is so—and that it is so I should be very pleased to show anyone who may favour me with a call—why should our employers be put to so much expense in erecting and heating grand dungeons for this dainty, which can be so easily cultivated without their aid? I have several beds in bearing now that have been made in the manner described. To-day (December 16th) I have picked a punnetful from a square foot. I could pick many such—in fact, the beds are a perfect sheet of white all over."

Chapter 2 is on the "Preparation of the Materials," and is an account of the practice of different growers, from which Mr. Robinson draws the following conclusions:—

"1. That very careful preparation and frequent turning over of the manure under cover are not necessary to success, and that it is quite needless to prepare the manure under cover, except when it is gathered in a very small quantity, so that a heavy rain or snow would saturate it. Where, however, the culture is pursued on a very small scale, and, it may be, only one bed made, it is best to keep it in a covered shed. 2. That carefully picked droppings are not essential, though they may be more convenient. Excellent crops are gathered from beds made with ordinary stable manure, droppings and long materials mixed as they come; but when the manure is used as it comes from the stable, it should be allowed to ferment before being used. 3. That the best way of preparing manure for the general culture of Mushrooms indoors, is to gather it in some firm spot, and allow it to lose its fierce heat. As it is usually gathered in an irregular way, precise directions

as to turning over cannot well be given; but I am convinced that one turning will suffice when it has arrived at a strong heat, and then it should be thrown together for a week or so, when, in being disturbed and removed to make the bed or beds, its strong heat will be sufficiently subdued. Where large quantities of stable manure are in a fermenting state, there should be little difficulty in selecting material to form a bed at any time. Should it have spent its heat overmuch, it would be easy to revive it with some fresh droppings. 4. That stable manure may be used when fresh, but it should be always mixed with more than a fourth of good loam or soil. If this be kept under cover, or stacked so that it may be had in a rather dry condition, so much the better, especially if the fresh manure, &c., should be overmoist. Beds thus made are most suited for cool sheds and the open gardens. 5. That a portion, say nearly one-fifth to one-third, of good and rather dry loam may always be advantageously mixed with the stable manure; the fresher the materials, the more loam should be used. In all cases it helps to solidify the bed, and it is probable that the addition of the loam adds to the fertility and duration of the bed. 6. That a thickness of from 1 foot to 15 inches for the beds in an artificially heated house is quite sufficient. Eighteen inches will not be too much for beds made in sheds, though I have seen excellent crops on beds only a foot thick, in common sheds with leaky sides. All beds made indoors should be flat and firmly beaten down, though the absence of firmness is not, as some think, sufficient to account for want of success."

Chapter 3 is on Mushroom spawn. What is it? How is it obtained in the first instance? and the mode of manufacturing it in masses, form the subjects of this chapter, which is illustrated with woodcuts of whole bricks of spawn, and bricks broken in pieces for the instruction of those who have never seen them; and there is also a representation of French spawn.

Chapter 4 treats of spawning and after-treatment, and, as Mr. Robinson says "this is the phase of the culture which requires most attention," we shall give his views on the subject.

"The important thing should be to ascertain if the spawn spreads through the bed properly. The usual practice is to earth-up the bed immediately, or very soon after it is spawned, and not a few take no further notice of the bed or beds till the time arrives when the Mushrooms ought to appear. A better plan is not to finally earth the bed until the spawn is seen beginning to spread its white filaments through the mass; and should it fail to begin to do this in eight or ten days after spawning—the conditions being favourable—it is then better to insert fresh spawn or to re-make the bed, adding fresh materials if it be found to fail from being too cold. If people generally were to see whether the spawn had 'taken' freely, instead of waiting for many weeks, not knowing whether it had or not, there would be fewer disappointments in Mushroom culture."

"The ordinary spawn bricks should be broken into pieces, say from about the size of walnuts to that of eggs; they do not break up into regular portions. Spawn in the more natural form in which we take it from the old beds, and in which it is used by the French, is ready to be inserted into the bed without any further manipulation. I believe this kind of spawn spreads more rapidly through the beds than our own brick spawn, and is, on the whole, much more desirable. As it is usually very dry, it is a good plan to place some of it in the Mushroom house a few days before spawning, so that it may begin to absorb moisture. A dark place in a warm house, or gentle boiler, would do as well, but in no case should it be done more than three days before spawning time. At spawning this might with advantage be mixed with some that has not gone through this process. A bushel of the ordinary brick spawn will suffice to spawn about 100 square feet. All spawn should be inserted near the surface, just buried in the materials of which the bed is made. The thin flakes of spawn which the French use, and which are usually nearly the length and breadth of the open hand, are generally inserted into the bed sideways, or in a diagonal slanting upwards, so that while one edge of the piece is buried 3 or 4 inches in the bed, the other is seen peeping through at the surface. Thus each flake of spawn is exposed to a slight difference of temperature, and, being thin and spongy enough to be immediately impregnated with the moist warmth of the beds, takes quickly and well. As to any particular mode of inserting the spawn, little need be said; if the bed be beaten so hard as many recommend, and which I do not believe to be at all necessary, a dibber will be required to insert the spawn; if not, it may be readily inserted with a trowel or with the hand. It is a good plan to use a mixture of two kinds of spawn."

Chapter 5 introduces us to the "culture in sheds, cellars, arches, outhouses, and all enclosed structures other than Mushroom houses," and Chapter 6 might as well have been included, for the caves at Paris being "other than Mushroom houses," and as the mode of culture does not differ there from the culture elsewhere, it was not necessary to spin out the subject with these additional twenty pages, especially as Mr. Robinson has furnished the information in so many other places already.

The subsequent chapters are occupied with such subjects

as culture in the open air and in pastures; and what may be called the second part of the book is a capital treatise on the other escent. Fungi found in Britain, with the modes of cooking them. This part is illustrated with excellent engravings of faithful portraits of the species, drawn by Mr. W. G. Smith; and this is by far the most valuable part of the book. We have nothing to say depreciatory of the former part, other than that the author has made too much of a subject which might have been disposed of with much less to do about it. No doubt the Mushroom is a most important and valuable crop, and if there were any difficulty in growing it, or if there were untoward circumstances under which a crop could not be produced, we should be grateful for instruction how to surmount the difficulties we had to encounter; but when anybody may grow Mushrooms, and grow them anywhere, we really think we might have been spared this bulky volume on so simple a subject. Still it is a skilfully compiled though a diffuse treatise, and those to whom a *livre de terre* is always acceptable, will find it a useful addition to their library.

**SEA-KALE BLANCHING.**—I have tried the plan recommended in your Journal of lining the Sea-kale pot with hay, but find the hay becomes damp, and injures the Kale. I prefer covering the Kale with earth, as it eats more tender, though troublesome to wash clean.—G. S.

### NOTES AND GLEANINGS.

Our contemporary, *Nature*, observes that it has long been laid down as a maxim in botanical hand-books that VARIATION AND DOUBLE FLOWERING never go together. Many botanists have, however, recently doubted whether the law always holds good; and that the double phenomenon may sometimes occur appears now to be definitely established by an article contributed by Prof. Morren, of Liège, to the April and May number of the *Belgique Horticole*, in which he gives a description, accompanied by a drawing, of a Wallflower possessing both double flowers and variegated leaves. The plant has now been grown for several years by M. Elm. Rodrigas, of St. Trond.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

A SPRINKLING of York, Vanack, or Nonpareil Cabbage seed should now be sown for good autumn Coleworts. These will come in when the Cabbage plot is all out. A Little Endive and other salading may be sown on a northern aspect. A good sowing of autumn Peas should be made directly. Full crops can scarcely be expected after this time. Knight's Marrow or Cormack's British Queen Peas should be topped the moment they reach the top of the sticks. Well-saturated manure should be dug-in for this sowing, and the drills thoroughly soaked with water previous to sowing. Scarlet Runners should be well staked, and those reaching the top of the sticks should be pinched.

#### FRUIT GARDEN.

Give the wood of the Peaches a thorough thinning, do not reserve a shoot more than is wanted for the next year. This, with keeping down all insects, is the way to obtain success. Disbud Fig trees, retaining no more wood than is required for the next season. Be sure to select the shortest-jointed wood.

#### FLOWER GARDEN.

Early bulbs, if the leaves are turning yellow, should be taken up, or the greater portion of the leaves trimmed away and the space occupied with some of the reserve stock. Verbenas, Petunias, and similar plants should be pegged down where it is requisite to cover the surface of the beds. Fine specimens of Fuchsias may be planted out on lawns, also large Pelargoniums, chiefly of the Scarlet kinds, and they should be well staked. Ten-week Stocks may yet be sown for a display in September and October, and a little late Mignonette, likewise a few of the best annuals for autumn work. In all suitable situations Ranunculuses are blooming well this year. They must be shaded from the intense sun to prolong their season, but where seed is required and cross-fecundation has been resorted to, they will be the better exposed. Should any of the foliage wither, the tubers should immediately be taken up, for it is seldom that the collection is ready together, and should rain come they would certainly start into growth again to their serious

detriment. Tulip bulbs may also be taken up and stored in a dry airy place. Do not remove the loose skins till thoroughly dry. Tie the buds of Pinks with waxed thread to prevent the pods splitting. As seedlings bloom, pull up those that are single or have serrated petals. Should there be any with thick, good-formed, rose-leaved petals, they should be retained to obtain seed from. Pansies may be successfully propagated by thin slips or cuttings under a hand-glass. Gather seed as it ripens. Water occasionally during dry weather; the moisture will induce the visits of snails, &c., which must be well looked after. Anriaculas and Polyanthuses will want well attending to as to weeding, watering, &c. Tie the stems of Carnations and Picotees as required.

#### GREENHOUSE AND CONSERVATORY.

The turning out of house plants is a proceeding which requires some forethought. Although it may not be desirable to turn out some of the tribes so early in the season on their own account, it is at least so in many garden establishments in the country, in order to carry out without impediment the forcing of fruits and other things necessary for the supply of a family. In this respect country gardens differ much from the gardens around the metropolis. In the latter, display is the principal point; in the former, display, although not altogether unheeded, has sometimes to give way to mere substantial matters. The first step is to provide a proper situation, and one scarcely secondary is to secure a sound bottom on which to place the pots. When the least suspicion of water-logging exists drainage should in the first place be secured, and the pots elevated above the ground level. I do not intend to assert that house plants must be turned out; I am merely advising on the score of expediency. Plunging, I should say, should in most cases be resorted to, provided the plunging medium is above the ground level. All plants with fine hair-like roots, as the Ericas and Epacris, should either be plunged or double-potted—that is, the pot inserted within an empty pot. Another great point is to classify the plants with regard to their general habits and characters. No plant-cultivator would think of mixing Heaths with Pelargoniums or Cacti. After the bedding-out is accomplished, a reserve stock should be immediately taken in hand and should receive high cultivation, in order to fill up blanks the moment they occur, either in the houses or the borders. All the best Verbenas, Fuchsias, Calceolarias, especially shrubby kinds, Petunias, and Lobelias, will be found most useful, and too many can scarcely be provided. These may be plunged by themselves in a sheltered situation. Now is the time to encourage a rapid and sturdy growth in Correas, Epacris, Pimeleas, Chorzemas, Leschenaultias, Polygalas, Ericas, &c. A constant stopping of gross shoots will be necessary in order to equalise the sap and to encourage the lower parts of the plant. Let liberal shifts be given during the season, in order that the pots may be tolerably well filled with roots before winter, thereby guarding against stagnation in the soil. As a general compost for most of these tribes, I would recommend three parts of a fibrous leaf soil in a lumpy state and abounding in sharp grit, to one part of a free turfy loam; a good sprinkling of charcoal from the size of a pea to that of a broad bean, with a portion of powdered crocks of similar size, should be added to the mass. I need hardly advert to the necessity of drainage; let it, however, be thorough, crocks being carefully placed to provide various outlets for the water, and these protected in turn by a smaller size of pounded crocks and charcoal, and, finally, the rough of the compost to place the ball on. This mode of proceeding, although apparently troublesome at first, will be found to be by far the least so in the end, and absolutely necessary where liquid manure is constantly supplied. Azaleas should be coaxed into producing wood without delay. Cinerarias whose blooming is over may be cut down, dipped in tobacco water to clear them of aphides, and turned out into a raised bed in the kitchen garden or reserve ground. They will produce an abundance of suckers by the end of August, and may then be increased. Chrysanthemums should be put in forthwith. I would now advise the removal out of doors of Camellias which have been forced into wood for winter-blooming; a shade of some kind will, however, be necessary. A number of gay-flowering plants for the store propagation pots should now be potted off to furnish a whole summer's supply, for on these, and not merely on newly-introduced plants, must the main interest of the greenhouse and conservatory depend. Fuchsias, Petunias, Verbenas, Scarlet Pelargoniums, and Achimenes will at all times furnish a vast amount of colour at least, and

this is the great essential in the modern flower garden and plant house.

## STOVE.

Let every endeavour be made to secure thorough freedom from insects among stove plants in general. In shifting them be sure to practise complete drainage, without which all the rest of the labour will prove abortive. Where a great amount of heat is indulged in to promote a rapid growth among Orchids, some of the Guatemala kinds, the *Laelias*, and those from cool and mountainous districts, should be separated, if possible, from the main stock. A viney where a trifling amount of heat is kept up would do. Abundance of moisture in the atmosphere must, however, be provided, and snails and other vermin carefully guarded against.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

A WEEK of parching weather, and yet most things are standing well where free radiation and evaporation are going on, and where plenty of moisture can rise up freely from beneath. Even Peas that are now in full bearing, as Ringleader, are standing the heat well, and so do most crops to which the hoe has been freely used to keep a loose surface, and thus prevent the moisture from more freely evaporating. Some young Peas, that we feared might suffer a little, had dry surface soil scattered about them. This will to some extent shade the ground from the fierce sun.

We wish for rain to fill our tanks and to enable us to thin many crops—as Onions, Carrots, and Parsnips, as they come out much better when the soil is moist; as it is, we made a mistake in the case of Potatoes that were planted rather shallow. We did not earth them up, waiting for a rain sufficient to wet the soil. Now, though frequently shallow surface-stirred, the earthing-up will do less good. Had we done it sooner the roots and tubers would have been kept in a damper medium. We have watered little in the vegetable way except Cauliflowers forming heads, and the succession crops of the same vegetable. These had a fair soaking of house sewage, and the most forward were thickly mulched with litter to prevent the moisture evaporating from the ground. It will pass off freely enough through the large fine foliage. With a little more convenience, we should feel pretty independent as regards all vegetables with a supply of house sewage. How Cabbages and Lettuces grow after an application! As to Lettuces, it is fortunate since the season has proved so dry, that we have sown thinly in rows. But little water is needed to keep such Lettuces crisp, as compared to what would be required in the case of transplanted plants. The roots forage for themselves without watering, though they are greatly improved by stirring the surface of the soil.

We cut away the remainder of the flower-heads on Sea-kale, as they would exhaust the plants, and after using the tops freely when close, they became less pleasing when they began to open. Broccoli is mostly over, but we have a fair supply of Cabbage, Scotch Kale, Sprouts, and Spinach. Cabbages are fine, and Cauliflowers will soon be plentiful. Sowed Cauliflowers for a late crop, and Coleworts for late planting. We have hardly a spare foot of ground, but presently we shall prick-out winter vegetables into the earth pit used for bedding plants, and lift and transplant when Strawberries are dug down.

Sowed a small succession of Peas, and we shall sow a smaller succession in a week or ten days, also Onions, Turnips, Radishes, &c. In all such sowing we run the point of the watering-pot along the rows, put the seeds in the moist soil, and cover with the dry soil, to arrest evaporation. Young rows of Peas thus treated, though the surface is as dry as dust can be, are looking rich, bold, and green, the roots having gone down into the moist soil. Two or three rows were inadvertently sprinkled on the surface, but as this would have done more harm than good, dry dust from the spaces between was thrown over to keep the moisture in.

Celery requires planting and pricking out, and must be looked to without delay.

As we could not conveniently prepare a place for Gherkins and Vegetable Marrows, and as we know how soon they are injured when standing in small pots, we have had them transferred to large pots, and placed under protection, until we find time to plant them out. Old Cucumber plants that have borne freely, and were a little exhausted, are breaking strongly and freely after a good pruning. We have been little troubled with insects; clear soft soap water is a good application now and

then, used with a syringe, chiefly on the under sides of the leaves. Green fly cannot bear it, and if red spider should appear, the soft soap water soon settles the insects, by pasting them in a sort of living apoplexy. We found traces of red spider which had made its appearance in consequence of keeping some Strawberry plants in the full sun at the top of the pit. We knew there was a risk, but we wanted a quantity of fruit in a hurry, and the position just suited the plants. Our plants have as yet been free of the Cucumber disease, but one of our neighbours, a celebrated Cucumber grower, has had it on his plants for several years, and try what he will he cannot get rid of it.

## FRUIT GARDEN.

We have yet much to do in thinning Peaches, Nectarines, and Apricots, and we gave a watering to some Morello Cherry trees that were quite covered with fruit. The soil, though on a north aspect, was very dry, and we feared the fruit would drop in consequence. We hope rain will come before long, as the drought is becoming serious to field, garden, and stock, and poor people are also suffering.

Watered with sewage our most forward Strawberries, which are setting well, and mulched the soil with litter to keep the fruit clean and prevent moisture escaping. We used common stable litter, with the droppings well shaken out. It will be tolerably clean as it is, and will be more so after a good shower of rain. The Strawberry plants pricked out last autumn and taken up lately, some being replanted under glass and others repotted, have done pretty well, the last perhaps the best. These were set thickly in a frame, and have been thinned out, and the small fruit taken off. The plants in the pots having been set on a shelf, made roots so freely as to fill the pots. We like autumn-potted plants better, but such plants are of great assistance in an emergency. Our house management consisted chiefly in supplying moisture and keeping a moist atmosphere; the latter we could secure by using on floors water far from clean.

## ORNAMENTAL DEPARTMENT.

We were afraid to mow the lawns lest we made them brown, but kept them green by switching off the white Daisies. We performed a good deal of potting, but the great work was planting-out bedding plants, and though we have much to do, we have got through the heaviest part of it. Though the plants were mostly raised out of beds of earth, and when planted were only once watered, they are holding their own well, and many are looking as well as if they had never been moved. We find on examining that the roots are making way in the moist soil beneath. In our exceptionally dry state of the soil we feel sure we gained much in preparing the beds, by keeping the dry surface to the top instead of turning it down. On one very warm day the plants had a dewing overhead from the engine in the afternoon. This refreshed any that seemed to suffer from the power of the sun, but *Calceolarias*, &c., in bloom seem as if they had never been moved. Roses against a wall have been fine for three weeks, and would have been finer if we could have given them the watering they needed. We have had scarcely a trace of insects, but the dryness has tinged a few leaves with mildew. In the bedding-out we have been thinking of Mr. Robson's huge bed, and should like, and hundreds of readers would like, to know his plan and arrangement for this season.—R. F.

## METEOROLOGICAL OBSERVATIONS

In the Barometre for the week ending June 7th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain
			Air.		Earth.			
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . . 1	29.849	29.804	66	41	58	53	S.W.	.08
Thurs. . 2	29.992	29.923	77	55	58	53	N.W.	.00
Fri. . . 3	30.175	30.111	71	51	61	54	N.	.00
Sat. . . 4	30.295	30.278	79	47	59	54	S.	.00
Sun. . . 5	30.429	30.391	73	33	61	55	N.E.	.00
Mon. . . 6	30.401	30.348	76	33	59	55	N.	.00
Tues. . 7	30.387	30.239	75	53	61	55	N.E.	.00
Mean.	30.232	30.141	73.66	44.71	59.57	54.14	..	0.08

- 1.—Fine; overcast; rain, stormy at night.
- 2.—Cloudy but fine; very fine; densely overcast.
- 3.—Densely overcast; overcast; cloudy and overcast.
- 4.—Foggy but fine; overcast; foggy and overcast.
- 5.—Densely overcast; cloudy but fine; clear and fine.
- 6.—Very fine; exceedingly fine; clear and fine.
- 7.—Clear but fine; very fine; overcast and wind.

## TO CORRESPONDENTS.

•• We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.*

FLOWERS AND FLOWER SHOWS.—Mr. C. J. Perry writes again on this subject, and wishes that Mr. W. Paul would state where he has seen dressed Dahlias exhibited. We must decline inserting any more letters on the subject.

PEARS DESTROYED BY GRUBS (*A Perplexed One*).—The halves of the pears were so injured by the post-office stamping, and so dried, that we could not detect the grubs. However, the mischief is done, and no remedy is available. Gather together all the injured fruits and burn them at once.

WEED ON LAWN (*J. L. T.*).—It is the *Acchilea tomentosa*, Woolly Milfoil. There is no remedy but uprooting it with a knife. This is the cheapest, and most effectual mode of extirpation, and must be repeated as often as the weed appears. Two or three women will thus clear a large lawn in a few days.

GRAFTING RHODODENDRONS AND GOLDEN HOLLIES (*Constant Reader*).—Rhododendrons may be grafted either in autumn or spring. Saddle-grafting is the best method. The grafted plants should be kept in a cool house, and gently heated until the union is established, and then be gradually hardened off before planting out. Golden Hollies may be grafted at the same periods, but whip, side, or crown grafting is preferable in this case. The treatment is also similar if the plants are done under glass. Hollies, however, may be successfully grafted out of doors; spring is the best season for doing so.

QUINCE STOCKS (*Subscriber*).—There are different varieties of the Quince used as stocks for the Pear. See vol. xvii., p. 200, but the stocks will vary in the robustness of their roots, and the variance is often caused by being raised on different soils. We could not say which you should prefer unless we saw them.

LACKEY MOTHS CATERPILLARS (*C. C. E.*).—Their empty skins in the web show that they have moulted for the third time, and are now gone into the cocoon state. The cocoons will be found chiefly between two leaves on the trees, and should be sought for now and be crushed.

WATER-WEED IN POND (*M. M.*).—It is the *Alisma alpinum*, an American aquatic plant, making its way into this country until about twenty years since. Your large pond "nearly choked up by it in a fortnight," is not a solitary instance—ornamental waters, canals, and mill streams, have been plagued by it, and it has done all efforts to extirpate it, for they are not fragments of the stalks and roots grow into plants rapidly. Swans devour it.

CLIMAX MELON (*G. A. T.*).—The colour of a fruit about the size of an ordinary Orange should be green, but perhaps there will be two or more shades of it in a fruit, some parts being light and others dark green. When the fruit is set, and has begun to swell freely, water every second or third day, according to the weather. As a rule, a three-gallon watering-pot to every light is a proper quantity. In watering, care should be taken not to wet the necks or collars of the plants. It would do the plants good to water them overhead about 4 p.m., or at the time of shutting up. Always being careful to water the bases of the stems of the plants, but do not water if the weather is cold or cloudy. The watering should not be continued more than four or five weeks after the fruit is set; then it will be necessary to lessen the supply, and to discontinue it altogether when the fruit is ripening.

GRAFTING CAMELLIAS (*J. C.*).—We do not perceive in what way you have erred in the treatment of the plants after grafting, but we think you have not hit upon a good time for putting on the grafts. The fault may lie in the grafting, or in the bad state of the stocks, but without seeing them we could not say what is the cause of their failing. If your stocks are small we would place them in a bottom heat of from 70° to 75°, and cover with a frame or bell-glasses, keeping close until the grafts begin to grow. If the stocks are in good health, it will be enough to place them in the hotbed, and cover them with hand or bell-glasses as they are wanted. The best time for grafting is in spring, just before the plants begin to push afresh, but it may be done at any time when ripe cuttings are obtainable, they being placed in bottom heat and covered with a bell-glass. We think that your former grafts have failed from a cold bottom heat, and not from the want of a moist atmosphere, as you say. A close and moist atmosphere; the others will no doubt also fail unless you at once place them in bottom heat and cover them with a glass.

INSIDE VERSUS OUTSIDE BORDERS FOR VINES (*Reader*).—Vines growing in inside borders are, of course, more subject to artificial risks and conditions than those in outside borders, and the area of action of the risks may be more limited. Being artificial, however, it does not follow that our treatment is less beneficial. The whole of our practice in the cultivation of the Vine is highly artificial, and the best proof of success is to be found in the results. We have grown vines in inside borders and in outside borders, and under certain circumstances, and under certain conditions, we like both methods. You urge several objections to the use of inside borders, which are, to say the least, very "far-fetched." The inside borders lose, it is true, "the soft spring and summer" as well as autumn and winter "rain." The rains may, in spring, and autumn, be of advantage, but in autumn and winter, especially for late Grapes, they are manifestly injurious. The advantages of the one we can easily supply. Inside borders are fully warmer than outside borders, especially in autumn, and the Vine starts earlier in spring, and is earlier in fruiting. From this, therefore, it follows, as has, indeed, been proved over and over again, that Vines for early forcing should be planted in an inside border. Mulchings are just as practicable inside as outside. They may not look tidy, perhaps, either in one place or the other. But the Vine requires more benefit from a mulching coming from the manure inside than if the same were placed outside. We would, indeed, place manure inside our vintages, even although all the roots were outside, just for the benefit afforded to the leaves, which require nearly as

much feeding as the roots. There is far less labour attached to Vines growing in an outside border. The labour involved in watering, when done thoroughly, is very great. In nine cases out of ten sufficient by one-half is not given, and hence arise the failures of many inside borders. Suppose two borders, one inside and the other outside, in the same constituents and extent of which are the same, we will guarantee to produce better early Grapes and earlier, to keep Grapes better and fresher during the winter, and to grow better Muscats with the former than with the latter. The reason is obvious; we have the roots in the soil, and are entirely under our control, to supply or withhold whatever the plants may require. An inexperienced gardener may prove the reverse. The Buckland Sweetwater Vine is in constitution very similar to the Black Hamburgh. It does very well with us in a cool house.

VIOLA CORNUTA (*J. Marshall*).—Viola cornuta will bloom so freely from summer, neither do seedlings flower so freely as offsets by division. We can well believe that your beds are now, and have been for weeks, very fine. You can calculate on their continuing so all the summer, if you cut off the seed pods, water well, and, as the soil is light, work in among it some rich soil, best sown in July. Divisions taken off now, or cuttings taken off and inserted in a shady place, will flower well in the autumn. With the above care we do not think you will want any succession; but purple Verbenas, or blue or Purple Cliveden thistles would come well, as they, too, bloom continuously. Your border disintegrated and trampled will look very well.

PUMP WATER FOR PLANTS (*Half-penny*).—We have been glad to obtain pump, or any other water for watering; nevertheless, soft, rain, pond, or river water is best. The pump water, if containing carbonate of lime, will be softened by adding 1 lb. of soda to the hundred gallons, but the use of all softening water in a tub or tank to the sun and air. Very hard water will be much improved if exposed previous to use to a day's sun.

VENTILATING SMALL GREENHOUSES (*Idem*).—Those who sell cheap houses can best tell about the ventilation; but for such small ones, rather too much the ventilation. We have a small one, 25 feet long, 12 feet wide, on which the owner has spent almost as much for ventilation as would have paid for a fixed roof. There is a door at each end, and both ends stand clear. A space below the apex made to open at each end, says a triangle with a side of 6 inches, but the heat besides the usual latch and lock, the door might be furnished with an eye and books, one book having a rod 6 inches long, and another 12 inches long, each screwed into the post, say 4 feet from the ground, so as to be movable. By the use of these a space at one or both doors could be kept open, and the door held steady for 6 inches or 12 inches; whilst from the end of May to the middle of October the door, or one, according to the wind, might be left or held open. The safety valves, however, in such a short house, are the openings under the apex at each end, which prevent all accumulation of hot air or steam in the house.

POY VINES AND POTS (*Idem*).—We cannot be quite sure why your Vines in pots, that produce "plenty of long shoots," do not produce fruit, though much may depend on these shoots being so numerous that sufficient strength is not concentrated in each, or any; or what is more likely, the number of shoots and their shading each other, prevent the Vines from getting enough light. On a standard, a strong well-pruned Vine almost every bud left after winter pruning will produce a fruitful shoot. For general treatment see pages 384 and 385. If we knew more of your case, and opportunities as to houses, &c., we might be able to give better advice. As the Vines are strong, four-year-old plants, and have not fruited, we would recommend one of two courses. First, select the strongest untopped shoot near the base, give it all the encouragement possible, and gradually remove all the other shoots, say in the course of a fortnight or three weeks. As this might be considered a rumour, though it would not be so under favourable circumstances, then, as a second plan, thin-out the shoots, say to four, five, six, or seven on each Vine. If you remove many allow those left to grow for a few days so as to give no severe check, then nip out the points, and gradually shorten them back to 18 inches from the main stem, encouraging the laterals to come, stopping them at a couple of joints first, allowing a fresh shoot to come from the point, and stopping that again. If you can give not merely but full exposure to the sun, so as to ripen these side shoots, then how you will in winter pruning almost every bud left except some small ones near the base will yield a fruitful shoot in the following season. It is vain to expect fruit from shaded unripened wood. We would rather have well-ripened wood the size of the little finger, than wood as thick as a thumb, but spongy and unripened. The first cut will be a piece of oak, the second a piece of pine.

FLOWERING STRONG-GROWING PELARGONIUMS (*Amical*).—It is impossible to state with certainty the best mode of growing and blooming Pelargoniums of *Vigorosa* habit in the open air. In cold places, and in poor soil, we would say, Plant out. In damp rainy places, and in rich ground, we would say, Plunge in pots, or make holes in firm soil. In some celebrated places growth in our opinion is too much sacrificed to mere blooming. We like to see fine heads of *Scarlet Pelargoniums*, and where the plants seemed almost drowned to death, it would not have been difficult to have put half a dozen plants in our coat-pocket. When growth is so rampant, it is easy to lessen it and encourage the buds, by the dislodging and allowing more air and light to enter. We often sink the pots of strong-growing kinds.

LIME WATER (*Idem*).—A quarter of a pound of quicklime will be more than ample for a gallon of water, but you can scarcely make lime-water stronger, as the water has only a small portion in solution. Such clear lime water is disliked by all insects.

VANTOIS (*Vicer*).—Pit.—You do not tell us the proposed height of the pit. For merely keeping bedding plants, we have frequently alluded to the sinking below the level losing as much in damp as it gains in warmth. Neither do we see why, if you sink the plants 12 to 18 inches, you should therefore you must start near the top of the space inside that depth; but if you wish to have the advantage of the walls below the level of the ground, then we would advise you to clear all out, concrete the bottom, with a slight fall, and if you cannot do this plan more especially a cespit in the lowest corner. We recommend this plan more especially

as you speak of having a boarded floor across if necessary. In adopting this plan, supposing your pit were 18 inches below ground, 15 inches above ground in front, and 31 inches at back, then in building your wall we would leave at 18 inches from the ground a ledge of brick 2 inches wide all round, or at least at the back and front. This will support stant boards laid across—say 11 inch in thickness, and if these are merely sawn and pitched, they will last nearly a lifetime. Now for some of the advantages of this plan over having the spelt, as if the plants were in a natural level, or filling up with brick rubbish. Firstly, the plants will thrive better in winter on the wood than if set on brick rubbish, ashes, &c. Secondly, There would be less liability to dumping, as the boards would not hold moisture like the soil or ashes, and with moderate care in watering, and the rain would be reduced to a minimum. Thirdly, There would be less risk from sudden frosts, as the amount of air enclosed would be nearly doubled, and, therefore, if the boards are not set very close together all sudden alterations of weather, would be less likely to do harm. Lastly, such a plan is rendered generally useful. For instance, few places could be better for wintering, with the movable floor, all kinds of bedding plants. Then if you wished to grow larger flowering plants in summer in pots, or to bring plants there to make growth, as *Asclepias*, &c., you could take out your boards, and at once gain 15 inches or more headway. If you wish to have a slight board for propagating, for late Cucumbers or Melons, moving your boards gives you the place at once, and thus one pit may serve many purposes. In a rather deep pit two or three ledges might be left so that the floor could be moved to any desirable depth. We speak practically on this subject, as a hollow-valet pit thus provided with a projecting ledge, is the most useful place we have, and has been often used in all these varied ways. We would not, I think, make a great difference over a solid wall, being much cooler in summer, and much warmer in winter.

**Heating.**—We have no objection to your proposed 2-inch pipe better cannot be laid, but we prefer 3-inch pipes, as in proportion there is less friction, and if the water is not the best, less risk of furring up inside. The flow and return along the back will be a great help, and will not be so good as having a flow and return in front, as in the former case the heated air will ascend at once to the highest point. This will be the case even if you have the pipes in front, but then the intermediate air is warmed as the heat passes through it. If there is a necessity for having pipes at the back it would be well to have some openings in the proposed flooring back and front, to promote the free circulation of the enclosed air. We greatly approve of the proposed alternative, having a pipe running all round the boiler, and having the more exactly such a plan as the elbows. As you propose doubling the length of your projected pit ere long, it might be as well if the boiler were placed at the middle of the pit when completed. Then, with T-flows and returns you could divide your pit into two, and heat both divisions, or each separately, at will. We do not think you would gain much by having the pipes all round instead of two in front, but you would gain in heating power if the pipes in front were to be one above the other. You would gain little if the pipes in front were on the same level, but you would gain a great deal if you could have a flow pipe for the greater part of its length—that is, if you place it just a little on the rise until with a few feet of the boiler, and insert an open air pipe at the highest point. We cannot well recommend a particular boiler. We like the simplest best. Any advertised in our columns we have no cause to object to, and such a boiler we would rather the easiest for an amateur to manage. After considerable experience we find that in the long run economy in fuel depends more on the management of the fireman than on the shape of the boiler. Some of our greatest amateurs have been very successful in this respect. The terminal saddle boiler is an improvement. The 18-inch conical boiler would suit you, but one a few inches larger would be as well. The slow-combustion boilers we have no doubt are good, but, wherever the maker, give us a boiler with a good draft, and a good firing furnace, and a shunt down, and we shall have no difficulty in ensuring a slow combustion, and in continued cold weather, where a constant fire is necessary, such a pit as yours, and a cool greenhouse, would often a brisk quick heat to meet sudden frosts rather than slow combustion, which is often another name for little heat. These slow-combustion boilers we believe render less care necessary to maintain a mild lasting heat on the part of the stoker. The same rule holds good as to stoves. Some time ago we met with a very nice one that was to keep fire in for a dozen hours. The manager so set the air-regulator that all the heat the fuel could give was out on the piping in less than an hour. We have not, unfortunately, had personal experience with the Trass' jointed pipes, but we have no doubt as to their answering. When the joints of pipes are properly supported so that they cannot move, and are properly attended to, the straight conical boiler is the mode of making joints is to ram home with rope yarn or tow, and then fill with thickish Portland cement. Some years ago we detailed how all the piping in a large garden establishment was thus done. Last year we found every joint perfect, and the great care was taken to make the joints on a firm basis to rest on. As you prefer hot water we do not wish to recommend you a fire. We agree with you that the expense will not be greatly different, and the heat from the hot water will be more cleanly, if not also more genial. Such a fire as you would require would need less fuel than any boiler you can have, and yield a continuous heat, but the heat from the pipes will be more uniform.

**SHRUBS NOT THRIVING (*Oakham*).**—The shrubs you name ought to thrive in your sandy soil, if you manure it well in winter and point in the autumn, but not so deeply as to interfere with the roots. A good dressing of cow manure, or good garden compost, will do the work of the first frost, and may then be dug in. We advise both to be done next autumn, keeping the ground clear of weeds.

**HERBACEOUS CALCULIARIES FAILING (*Idem*).**—The cause of the plants "withering at the bottom" is deep potting; the neck or collar being covered with matter, and the plants rotting, and decaying. Green fly should be kept down by fumigation with tobacco, and the "black-jacks" or "shoots" are a consequence of the plants being badly grown. The occasional one doing well would tend to put you on the track of growing others well if you noted the differences in their treatment.

**STELLA PERANONENSIS SPORE (*Idem*).**—Without seeing the plant we could not say whether it is worth propagating, but your description of the plant and the way in which it is obtained *Stella variegata*, and compare the two before you propagate to any great extent.

**TOADSTOOL (*E. B.*, a Constant Reader).**—Your fungus is one condition of the mycelium or spawn of some fungus as yet undeveloped. If you

will allow it to grow, and send us its perfect state when fully grown, we shall be very glad to see what comes of it. It is probably the sclerotoid condition of some fungus, and is very interesting.

**STRAWBERRY BLOSSOMS (*R. H.*).**—Do not pick them off; although planted last autumn the plants must have been well rooted, and, therefore, there is no fear of the crop this year diminishing that of next year.

**CHRYSAETHUM PROPAGATION (*Idem*).**—Cuttings should be made of young tops in March, but at the end of the present month and in July you may propagate by layering. Bend the stems gently down, and peg them into rich soil in pots, leaving about 2 inches of the top of each stem above ground. Keep the soil moist. When well rooted cut the layer from the parent plant, and remove the pots into a frame or pit; give air and water freely, and shade for a few days. They will form dwarf plants.

**NAMES OF INSECTS (*C. C. E.*).**—The Elm leaves sent were infested by a species of Aphidæ (*A. ulmi*), of unusual occurrence. The larger ones are short, nearly globose, and almost inert gravid females, with very short legs and antennæ. It is nearly black, with the rings marked with grey punctures. The minute ones are its progeny. (*A. Subsericea*, Dublin).—The insect sent is a beetle of the family Entomobryæ, and is named *Elatæ* (Athous), aptator of Olivier. In the larva state it is a wireworm, and is destructive to various young plants by gnawing off the root.—*L. O. W.*

**NAMES OF PLANTS (*Tyro*).**—*Cotyledon rubiculis*—*Penny-wort*. (*H. D.*)—*Lilium floribundum*. (*Pennance*).—2, *Deutzia scabra*; 3, *Cypripedium* (*Idem*). (*J. R. C.*)—4, *Ulex europæus*. (*Idem*).—5, variety of the Crab, *Pyrus Malus*; the flowers were scarcely in a condition to determine it more closely; 2, *Pyrus Aria*, the White Beam tree. (*Idem*).—1, *Selaginella Brunellii* (S. pubescens of gardeners); 2, Possibly *Doryopteris palmata*; 4, *Hypolepis repens*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### RATIONAL POULTRY-KEEPING.—No. 3.

#### CHICKEN MANAGEMENT.

It would be tedious work if in rearing chickens the same attention were required when they get older as they demanded in their earliest days, but it is not so. They are growing, their early troubles are past—ascertain now that the bars of the rip in which the hen is confined are sufficiently far apart to allow the chickens to pass easily backwards and forwards. Many an apparent deformity is the result of accident at this age. We are always careful to have our ribs made with a side-sliding transverse bar in front, taking the space of two bars, and allowing free passage for anything smaller than the hen herself. If this is not done, it is a common sight to see a chicken half-way through, struggling and screaming for a long time. If, then, there is grass or green stuff for food, road grit for dust bath, and a meal of victuals three or four times per day, the chickens should thrive. One other thing is essential, and that is fresh water. By fresh, we do not mean water put in the vessels every morning, and left during the day; but as we are convinced that water put in any vessel at six o'clock in the morning, and left during the day, is bad drink for the chickens in the evening, we always insist on the water being thrown away, and the vessel replenished three times per day in hot summer weather. We advise say replenished, because both men and boys are very fond of filling up. We are sure that heated and dead water is bad for poultry of all ages in the summer months.

We have our stock of chickens, as many as we intend to hatch. What do we intend to do with them? Some for exhibition, some for stock, some for table, some for market. This is one of the difficult, almost the painful parts of the pursuit. It is almost impossible for one, who is, after all, but an amateur, not to feel a little interest in the animals he has been rearing, when they belong to the classes that look up to, and are dependent on their owner. Another thing is that in rearing poultry a man is generally associated with his wife and children; they always belong to the merciful. This one is too good to kill, that one is such a favourite, a third has been reared only by good nursing, and it would be more than a shame to kill it. All depends at this time on the firmness of the master. In almost every case the profit or the loss of the hobby depends on the resolutions now made, and on their being carried out. Where it is desired to make a profit, it is very essential no unprofitable mouths should be kept. No food should be given that will not afford a return. The meal-tub is the enemy of the balance sheet, and a worthless bird devours as much as a good one. Prompt is profitable action at this stage of our pursuit, and birds intended for sale and table should now be looked out. They should be the faulty birds, such as lack the characteristics of the breed to which they belong, or have superfluities that are equally objectionable—for instance, four-clawed Dorkings, vulture-headed Cochins and Brahmas, five-clawed Hamburgs, single-combed Sibirites,

Polands with any comb at all, lumpbacked and wry-tailed birds, also such as have twisted thighs. All these should be pitilessly marked either for sale at market or for consumption at home. Every bird with a pronounced and visible defect should be done away with. Kind-hearted people, little girls, and some others, always seem to have a surplus fund of grudging sympathy to expend on those that can never make a profitable return for it, and so, too often, the deformed and mutilated are their pets in the yard. Nothing can be more mistaken. This is the most favourable time for selling faulty birds, because at this season young poultry is more valuable than at any other; because poultry to be eaten in perfection should be eaten young, for after you have kept it longer, and it has consumed more food, although somewhat larger, it will be worthless; and because the fewer fowls you have on the ground, the better they will do.

### BROWN RED GAME BANTAMS.

A MONTH ago, when I wrote in your Journal on the above subject, under the *nom de plume* of "GALLUS," I was not aware that some gentleman had previously used the same signature, but on opening the number for the week following I saw Mr. Croeland congratulating himself on "his old opponent" having taken up the matter, and I have since been told by a brother fancier that some five or six years ago letters were written and published bearing that signature. I have never written in THE JOURNAL OF HORTICULTURE before I wrote advocating the interests of Brown Red Game Bantams. Let us hope that we shall soon see the opinions of the real "GALLUS" on the subject. I cannot conclude without expressing the satisfaction I feel at the enthusiastic manner in which several well-known exhibitors of Game Bantams have come forward to assist in my endeavours to obtain for my favourites the position they merit, and I have every confidence that if they will not relax in their efforts, but will one and all put their shoulders to the wheel, we shall before another year have every reasonable concession made to us by committees.—W. GREAVES, Bradford, Yorkshire.

### THE BATH AND WEST OF ENGLAND SOCIETY'S SHOW OF POULTRY AND PIGEONS.

THE Show held this year at Taunton was one of unusual excellence; in fact, very rarely, if ever, has there been so perfect a collection exhibited at this season. It is generally admitted that this meeting commences the new shows of the year, and consequently it invariably creates a great deal of interest amongst amateurs of poultry. We were very pleased to find that, although held at a time when many of the specimens are comparatively out of feather, not only was there a much greater entry than in previous years, but also as a whole the quality was superior. The arrangements of the tent for poultry by Mr. Bush could not be improved. A few instances occurred in which the owners, evidently fearing that want of condition would prevent success to their poultry, neglected to send in their fowls, forgetting that the same general cause would act as unfavourably on their opponents. Several prizes were lost entirely from this misallocation, where, had the birds been forwarded, very little doubt can be entertained they might have been successful.

Some unusually fine specimens of Black Spanish fowls were the first variety that were presented to the visitors on entering the poultry tent. Mr. Edward Jones, of Berkeley Place, Clifton, Bristol, proving successful in taking both first and third prizes with first-class birds, which were most admirably shown. Mrs. Allsopp, of Hindlip Hall, was second. In *Cock* *Partridges*, Mr. John Martin, of Clinton Works, Worcester, took both the first prize for the best pair, and also the first prize for the best cock with his well-known racy-combed birds. Mr. Lionel Patton was the recipient of the second and third prizes with very good pens. The White Dorking class was really indifferent. Some excellent *Cochins* were shown, but mostly in deep moult; the pens of Miss Milward and Mr. Cattell were very superior. Mr. Stephens, of Walsall, took all the prizes for Partridge-feathered *Cochins*. The White *Cochins* were not equal to those of prior meetings. *Brabams* mustered strongly and well, the Dark ones being decidedly the best pens. *Game* fowls were good, the Rev. G. Crawley and Mr. Matthew dividing the honours. *Heathbills* throughout were good; in fact, as classed, far better than are generally to be met with at the south of England shows. The *Bantams* were extraordinarily good, the Blacks and Selbrihs especially so. Both Game Bantams and single Game cocks were worthy of the highest commendation. The *Turkeys* and *Geese* were perfection, and the winners were well pressed by the majority of the competitors. Unfortunately for the owner, three pens of Toulouse *Geese* were completely thrown out from an error of entry, three birds being sent instead of pairs, but they were first-class specimens. Aylesbury and Rouen *Ducks* were very good, and the class for Ornamental *Waterfowl* was well filled.

The weather, though sultry, was exceedingly favourable for out-door meetings, and the attendance was beyond expectation, and visitors came from very distant districts.

SPANISH.—1 and 3, E. Jones, Clifton, Bristol, 2, Mrs. Allsopp, Hindlip Hall, he, H. F. Cooper, Walsall. DORINGS.—Coloured.—1, J. Martin, Clifton, Worcester, 2 and 3, L. Patton, Hindlip, Taunton, he, J. K. Fowler, Aylesbury, J. H. Kinca, Kinca Heath. White.—1, Lord Sondes, Fording, Wiltshire, 2, Mrs. Hartwell, Bradgate, Leicestershire, 3, C. H. Dowsett, Pleshey, Chelmsford, 4, Miss J. Milward, Newton St. Loe, 5, J. Cattell, Birmingham, 6, D. W. J. Thomas, Brecon. *Partridges* and *Partridge-feathered*.—1, Mrs. E. Browne, Chard, 2, H. Dowsett, Pleshey, Chelmsford, 3, F. Brewer, Lostwithiel, 4, W. J. Pook, Bradgate, 5, BAUMA POOTRA.—Dark.—1 and 2, R. W. Beachey, Fildes Heath, 3, H. Dowsett, Pleshey, Chelmsford, 4, and 5, Mrs. E. Browne, Chard, 6, H. Dowsett, Pleshey, Chelmsford, 7, J. P. Pares, Postford, Guildford. GAME.—Black-breasted and other *Birds*.—1, H. Hall, Cambridge, 2, Capt. G. Price, Fildes Heath, 3, H. Dowsett, Pleshey, Chelmsford, 4, Mrs. E. Browne, Chard, 5, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 6, S. Matthew, Stowmarket, 7, *Duckings* and other *Ducks* and *Ducks*.—1, S. Matthew, 2, J. Fridt, 3, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 4, and 5, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 6, S. Matthew, Stowmarket, 7, *Duckings* and other *Ducks* and *Ducks*.—1, H. Hall, Cambridge, 2, Capt. G. Price, Fildes Heath, 3, H. Dowsett, Pleshey, Chelmsford, 4, Mrs. E. Browne, Chard, 5, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 6, S. Matthew, Stowmarket, 7, *Duckings* and other *Ducks* and *Ducks*.—1, H. Hall, Cambridge, 2, Capt. G. Price, Fildes Heath, 3, H. Dowsett, Pleshey, Chelmsford, 4, Mrs. E. Browne, Chard, 5, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 6, S. Matthew, Stowmarket, 7, *Duckings* and other *Ducks* and *Ducks*.—1, H. Hall, Cambridge, 2, Capt. G. Price, Fildes Heath, 3, H. Dowsett, Pleshey, Chelmsford, 4, Mrs. E. Browne, Chard, 5, Rev. G. S. Crawley, Crawley, Molehill, Tiverton, 6, S. 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fatal impediment. If you want further information send us a directed, and, above all, stamped envelope. We know you are wrong.

**PREPARING FOWLS FOR EXHIBITION (F. E. O.).**—It would far exceed the limits of "Our Letter Box," to give you all the information you require. The only fowls that improve by being confined before exhibition are the Spanish, they do well in a small dark place. All birds require to be well fed and much water, and those to be shown together must be accustomed to run together.

**POINTS OF SILKIES (Idem).**—Silkies should be top-knotted and rose-combed, have very dark faces, and a brilliant blue metallic lustre on them. The difference between a cock and both hens would not be so important as between two huns; but we need hardly say that uniformity is an element of success in a pen.

**COMMENCING POULTRY-KEEPING NEAR LONDON (T.).**—We answer to your first question—Ought you to keep poultry?—Entirely a matter of taste. If you like poultry, Yes. If you only like eggs, No. Our belief is that half the world does not know what it likes. Such a one says he could not do without poultry, and then, when he has a few, he says he does not like egg; another loves a broiled chicken, and can fancy only those he breeds and feeds himself. Moonshine all, "my merry matters." Neither cares for poultry. One eats an unquestionable egg, the other a futile chicken; the one is divided both are good no question of it. Of those who like poultry to keep cocks and hens, to multiply surface, to overcome desiderata, to supply that which is wanting, to concentrate on a cock and five hens the interest enjoyed by those who have thousands of acres and hundreds of fowls. Great diversity of opinion, and of the poultry food advertised, and small opportunities, and that which is patent to him or her who has only a cock and five hens passes unnoticed among the hundreds of a larger undertaking. We dare say it is only an omission—you say nothing about grass. Insects, snails, woodlice, ants, &c. of the garden, and the poultry second course of the vegetable garden, is the soup, fish, and removes, the *piece de resistance*. Have they grass? Hamburgs and Game are the worst, or best fowls. If it be desired they should live on their neighbours, they are the best. Like the proverbial North Brum, they are never at home but when abroad, and their neighbours are never at home but when they creep under his fence and the pigs fly over, and angry correspondence ensues, then you must give them up. If they are a good sort of people, you may keep fowls by adding poultry as you walk from the station, that the neighbours will welcome to all the credit of his success. If the neighbours are caustic, you must fall back on Cochins or Brahmas.

**FEEDING DUCKS (E. R. S.).**—You may give your Ducks oats, meal, and barley. Eschew Indian corn; it makes fat beautiful to the eye, it makes weight wonderful in the scale; but when it is roasted the fat "has been gone ever so long," and the lean is hard, black, and dry. The cannibals of the South Sea know "a thing or two." They condemn as tough the legs of a Frenchman because he is always dancing, the arms of an Englishman because he is always at work; but if they could taste one of each fed on Indian corn they are sure to give up the idea of it. If the *gourmet* would decline to purchase either, and would content themselves with a well-to-do German or a steady-going Dutchman. So much the worse for them. That which is young is generally growing (except that miserable little pig at Lymington, which is sold up by the hind leg, and the hen is hard, black, and dry). Food cannot make growth and fat, but we will undertake to say your Ducks make growth. Shut the fattening birds up. Feed them with bran, oats, and oatmeal put in a shallow vessel, with gravel, water, and a sod of grass. They must have no other food, but make health, not fat.

**ILL-FLAVOURED EGGS (W. B.).**—When eggs taste disagreeably the food of the hens is responsible for it. If you confine your feeding to oats, oatmeal, barleymeal, and an occasional change of Indian corn, there will be no bad taste. Beyond what we have mentioned, if the birds have a grass run, they are not likely to do any harm. If the grass is not good, the ingredients of a stimulating character, and they are, consequently, injurious to fowls. Give your birds some good heavy sod of growing grass, which if you can.

**CHICKENS DROOPING AND DYING (C. A. C.).**—We don't very much if your chickens are not too highly fed. Table scraps should be confined to the crumbs, and at this time of year the beer is not wanted. Give chopped egg, bread and milk, your table scraps chopped fine, and let them have plenty of fresh mould and road grit. When chickens die of flu, they die very much as you describe. Put some wormwood in their water.

**INCUBATORS.**—*Ort* wishes to know how our poultry breeders are getting on with the incubators, and will feel obliged if some subscriber would state his success with any of the various kinds of incubators he has. On the average, and the incubator he employs. Will the incubator answer practical purposes, or only as an experiment?

**BRAHMAS.—(W. M.).**—L. Wright, Esq., Kingdome, Bristol. Payne's "Bee-keeping for the Many" is sent to him free from our office if you enclose five postage stamps with your address. We see the egg-esters in many shops in Bristol, but cannot specify anyone.

**BIRMINGHAM ROLLERS (Fido).**—Birmingham Rollers have as good a claim to being the purest of all the other varieties of Pigeons we have. They are as often (in our opinion often) clear-legged as muffed—that is, Grouse-muffed or shinned, but we never saw a good Roller that was heavily feathered on the legs, similar to the Trumpeter. The assertion of your friend that they are a cross between the Trumpeter and the Pouter is all nonsense, and as to fancy for keeping them, or, as he says, "killing all such birds," we have only to say, there are many dying fanciers who think his fancy birds just as worthless as he considers the Rollers. So much for taste. Rollers are as often blue as any other colour—that is, blue and white, as saddles, judges, &c., but entirely blue Tumblers are now very scarce, and the black bar generally shows itself in blue Pigeons of any variety. Rollers are nothing more nor less than Tumblers. They are merely called Rollers in consequence of their wonderful gyrations, and they are not to be distinguished in any way from the Tumblers, which can merely tumble. They are merely the common flying Tumbler brought by many years of careful selection in breeding and training to the perfection which many of them have now attained, and they are now mainly bred in the West of England, and around Birmingham, where they are at present found in great numbers, and are in great favour; hence their name "Birmingham Rollers." In Birmingham they are merely looked upon as the best of flying Tumblers, and it is only out of their district that they are generally known by the name "Birmingham Rollers." It has, indeed, become the custom of

late, since Rollers have become more generally known—although they have been in favour in Birmingham for the past century—to call everything (and especially if it comes from Birmingham) in the shape of a Tumbler with long muffed or feathered legs, a "Birmingham Roller," although not one in fifty has any pretensions to the title. In fact, very few persons out of the neighbourhood really know what a downright good flight of Rollers and good Tumblers are, and what pleasure they are capable of affording to the initiated. Are you sure your birds are Rollers, or are they merely the ordinary long-muffed Tumblers, which we should imagine from your questions? We must refer you for further information on the subject to the articles of "H. F. B." in "The Field," which appeared in our Journal of March 17th, 19th, 24th, April 5th, 12th, and May 12th.

**OBTAINING HONEY FROM OLD STOCKS (A Reader).**—Permit all the stocks that will do so to swarm twice, and then, twenty-one days after the issue of the first swarm, cut the remaining bees by driving, and add them to the second swarm. If any stocks swarm but once, their remaining inhabitants should at the expiration of the same period be driven into empty hives and established as artificial swarms on their old stands, or it may be done in any way you please. The number of colonies, they may be united to their first swarms.

**BEES MIGRATING.—QUEENLESS STOCK (An Ignorant Bee-keeper).—Dr. Bevan** recites several cases in point, and one in particular where the bees have been driven from an apiary two colonies distant. There is no chance of the bees now being able to hatch a new queen; the best plan would be to add a second swarm to the queenless colony.

**LIGURIAN BEES (E. Wheeler).**—Your stock will not now swarm a third time. The first swarm may fill a super this season, but neither the third nor the fourth is likely to issue.

**BEES QUEENLESS (G. Cummings).**—We see nothing for it but to add a swarm, which, however, need not be a very large one. A second swarm, or cast, will answer the purpose sufficiently.

**BEES OR FERRY TANGS (T. F. C.).**—You are totally wrong. Bees do no injury to fruit trees, but in some instances are beneficial by conveying pollen from flower to flower and thus promoting fertilisation.

**EXPELLING BEES.—YELLOW EXCREMENT (W. J.).**—The obnoxious black glossy bees which you mention are being expelled by the Ligurians, we first noticed by Haber, and their occasional appearance has never been satisfactorily accounted for. Voiding yellow excrement on the alighting-board is not a symptom of foul brood, but rather of dysentery, induced probably by the introduction of the hive, and which is likely to disappear as the season advances.

**COOKING THE AUBERGINE, OR FRUIT OF THE EGG-PLANT.—A Lady** has sent us the following. "The Aubergine is cut in slices when ripe, and fried in butter or oil a nice brown, first dipped in fine bread crumbs. No sauce is served with it in French cookery, but doubtless the enterprising artist could invent a suitable sauce if it were required."

## COVENT GARDEN MARKET.—JUNE 8.

A fair amount of business is being done, and the general trade is better; but, owing to the heavy supplies, both home-grown and continental, no better prices can be obtained. The recent heavy consignments of West Indian Pines, which are of unusually good quality, have had a marked effect upon the sale of those raised under glass. Potatoes of excellent quality are now coming from Jersey and the West of England, and sell at from 12s. to 20s. per cwt.

### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	0	6	0	Nectarines.....	quart	0	10	0
Apricots.....	doz	2	0	6	Oranges.....	doz	10	0	20
Cherries.....	lb.	1	0	8	Peaches.....	doz	10	0	10
Guavas.....	doz	1	0	0	Pears, kitchen	doz	15	0	20
Currants.....	lb.	1	0	0	Pears, dessert	doz	10	0	0
Black.....	do	0	0	0	Pine Apples.....	doz	4	0	8
Red.....	doz	6	0	10	Plums.....	doz	10	0	0
Filberts.....	lb.	0	0	0	Quinces.....	doz	0	0	0
Cobs.....	lb.	0	0	0	Raspberries.....	doz	0	0	0
Gooseberries.....	quint	0	0	0	Strawberries.....	lb.	2	0	6
Grapes, Hothouses.....	lb.	4	0	10	Walnuts.....	busbush	10	0	0
Lemons.....	100 lb	6	0	0	Walnuts.....	doz	10	0	20
Melons.....	each	0	0	0					

### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	doz	8	0	6	Leeks.....	busbush	0	10	0
Asparagus.....	100	2	0	5	Lettuce.....	doz	0	6	10
Beans.....	doz	0	0	0	Onions.....	doz	0	10	0
Broad.....	busbush	0	0	0	Mustard & Cress, painted	doz	2	0	0
Beet, Red.....	doz	2	0	3	Onions.....	busbush	4	0	8
Brussels.....	doz	0	0	0	Parsnips.....	doz	0	10	0
Brussels Sprouts.....	doz	1	0	2	Parsnips.....	doz	0	10	0
Cabbage.....	doz	1	0	2	Potatoes.....	busbush	3	0	5
Carrots.....	doz	4	0	8	Radishes.....	doz	1	0	0
Cauliflower.....	doz	4	0	10	Rhubarb.....	doz	0	0	0
Celery.....	doz	3	0	0	Rhubarb.....	doz	0	0	0
Colewort, doz. bunches	3	0	0	0	Spinach.....	doz	0	0	0
Cucumbers.....	each	0	6	1	Spinach.....	doz	0	0	0
Endive.....	doz	2	0	0	Spinach.....	doz	0	0	0
Fennel.....	doz	0	0	0	Spinach.....	doz	0	0	0
Garlic.....	doz	0	0	0	Spinach.....	doz	0	0	0
Herbs.....	doz	0	0	0	Spinach.....	doz	0	0	0
Horseradish.....	doz	0	0	0	Spinach.....	doz	0	0	0

## POULTRY MARKET.—JUNE 8.

ALTHOUGH the cottager said the turning of the world was nonsense, for he had lived in his house thirty years, and the same oak tree had been right in front all the time, yet the seasons follow each other, and their consequences remain the same. The supply of poultry increases in June.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls.....	doz	4	0	4	Guinea Fowls.....	doz	6	0	0
Smaller ditto.....	doz	4	0	4	Pigeons.....	doz	0	9	0
Chickens.....	doz	2	0	6	Rabbits.....	doz	1	5	16
Ducklings.....	doz	3	6	4	Wild ditto.....	doz	0	8	0
Geese.....	doz	6	0	0	Wild ditto.....	doz	0	8	0
Turkeys.....	doz	0	0	0	Partridges.....	doz	0	0	0

## WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 16—22, 1870.	Average Temperature near London.			Rain in last 45 years.	Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	a.
16	Th	Meeting of Royal and Linnean Societies, [8.30 p.m.]	72.6	48.3	60.4	18	44	3	16	8	59	11	57	8	17	0	19
17	F		72.9	47.3	60.1	23	44	3	16	8	33	11	57	7	18	0	
18	S		72.8	46.4	61.3	21	44	3	17	8	59	11	57	8	19	0	
19	Su	1 SUNDAY AFTER TRINITY.	70.8	48.6	59.7	22	44	3	17	8	morn.	7	10	20	0		
20	M	Meeting of Royal Asiatic Society, 3 p.m.	72.3	48.6	60.4	29	44	3	18	8	19	0	16	11	21	1	
21	Tu	Longest Day.	73.4	51.5	62.4	18	44	3	18	8	39	0	23	0	22	1	
22	W	Royal Botanic Society's Show opens.	73.5	48.8	61.2	17	44	3	18	8	56	0	23	1	23	1	

From observations taken near London during the last forty-three years, the average day temperature of the week is 72.7, and its night temperature 48.9°. The greatest heat was 83°, on the 22nd, 1846; and the lowest cold 30°, on the 30th, 1865. The greatest fall of rain was 1.46 inch.

# ADMITTING GARDENERS AND OTHER VISITORS TO GENTLEMEN'S GARDENS.



AM in receipt of "The Horticultural Directory," which is a very useful publication. I think Elvaston Castle, Derbyshire, ought to be excluded from that Directory, as Lord Harrington allows no one to see it. I went a short time since with a leading gardener of this neighbourhood, and although we met with Mr. Brown, the gardener, we were refused admission. I have visited the principal gardens in England and Scotland, and was never before refused admission.—JOHN PEARSON, *Range-moore Gardens, Burton-on-Trent.*

[We feel very strongly upon this subject, for we hold it to be a duty to admit gardeners; such admission is one of the best sources of improvement. Restrictions and set days for the public are not objectionable, but gardeners should be admitted whenever able to call. Having this conviction, but wishing to know the opinion upon it of a gardener of sound judgment, we sent the letter to Mr. R. Fish, and we now publish his commentary.—Eds.]

I wish the subject had been broached when the evenings are long, so that I should have had time to arrange my thoughts, instead of throwing them down pell-mell in the few minutes that can be spared at this busy season.

First, then, as to the desirability of gardeners visiting other gardens there can be no question. I know of nothing so calculated to take self-conceit and narrow-mindedness out of a man, to give him fresh and new ideas, as seeing what other gardeners are doing. Owing to circumstances I have visited little of late, but if spared in health I mean to visit more; and although I can join Mr. Pearson in saying I have seen some of the best places in the three kingdoms, I can conscientiously add that I have rarely turned into a garden, even if there was only a man and a boy, or a man only, but I have left with a sense of having gained something. It was no mere burst of enthusiasm, then, that led me years ago to urge on employers, even in their own interests, not only to give their gardeners reasonable time to visit some of the best places, but also to pay their expenses. Many a man must stay at home because he cannot afford to go much out, and also because, for a similar reason, of which more anon, he cannot afford to receive so many visitors as he would wish to do. In the interests, then, of gardeners and employers alike, and more especially of the latter, I hold it to be a matter fully established that a gardener should see some of the best gardens and the results of cultural skill in shows, &c., every year. The "stick-at-home" may be slightly better than "the ever-out;" but if an employer suffers in the latter case from things being neglected, he will be sure to suffer in the former from self-satisfaction and want of emulation. A moderate use of visiting will be beneficial to employer and employed.

But, again, if there are proprietors of fine gardens who resolve to keep their places for the gratification of their

own eyes alone, what are you to do, what can you do, with them? Would it be of any use to keep such places out of the "Directory"? Would it not be better to write against them, "Not to be seen"? Perhaps it would be quite as well to do nothing at all. We all know that property has its duties as well as its rights, but there is also something in a man being able to do "what he likes with his own." It seems very difficult for some minds to comprehend the simple fact, that narrow-mindedness and exclusiveness ever bring their own punishment. When I have looked on beautiful suburban gardens, with nothing but an open fence to keep them from the roadway, I have felt a thankful sympathy with the proprietors, because I knew that they enjoyed the beauties in front of their windows all the more from knowing that every passer-by was free to admire and enjoy them too, and by "right of eye" to make them, as it were, his own. When I have come to similar enclosures walled-in, and even the gate boarded so that no passing peep could be obtained, most other feelings became merged in that of pity that the owner so resolutely deprived himself of that happiness which can only be realised when based upon and co-existent with the happiness and pleasure of others.

As to specifying the places where access is freely given to gardeners, I should only be enumerating the Trenthams, the Chatsworths, the Ennises, the Bictons, the Dalkeiths, multiplied in less places by thousands, where gardeners may freely go on appointed days on notice given, or at any time without notice at all. I was under the impression that Elvaston was open to visitors on certain days for many years past. It is rather singular that it is the only place to which a courteous denial of admission was given, as I got no farther than the gardener's office. This was many years ago, and as I had walked across the country from between Stafford and Rugeley—a long tramp too—I recollect of expressing myself in London's "Gardener's Magazine" somewhat to the effect, that it would be desirable that the places from which gardeners were excluded should be named, so that a long journey might not go for nothing. In only one other instance did I get anything but a courteous refusal—attention to business was assigned as a reason why no attention could be given to visitors. In every other instance of visiting a place I have met with the greatest courtesy, in a great many cases with the greatest kindness.

It has not escaped my observation that, though more gentlemen are opening their grounds to the public on certain days and under certain regulations, that others are curtailing or withdrawing the privilege, and that though as a general rule gardeners are admitted, there is in many cases less of heartiness and open straightforwardness in the matter than there used to be.

In the first place, as respects the public, many of such changes are owing to the proprietors getting tired of the mere bustle of crowds of visitors. Something, again, is owing to a few unmanageable folk appearing among the generally-well-conducted public. One gentleman justly observed, that although he opened his grounds, that was no reason why the public should take possession of his house, and

try to lord it over larder and cellar. Another, as there was every convenience in the neighbourhood, insisted that there should be no pic-nicking, no eating and drinking parties; but on going round with a friend, there were jovial parties in every cosy nook. It is generally understood that in these cases the eye is chiefly to be gratified, but I have known of such cases as a gentleman raising his hat to pay proper respect to the proprietor, and a show of cuttings of some of the newest things descending from that hat. A liberal-hearted lady was much shocked when, after the excitement of an open day, she took a walk in a retired lane in the evening, and found it strewn with many flowers that must have been nipped in mere wantonness to be thrown away. Such annoyances will happen until the well-conducted public exercise a stronger moral lynching power over the few who thus forget themselves.

For myself, after considerable experience, I have found that the great mass of men and women feel their honour appealed to just as you repose trust in them. In a few cases, which I considered it better not to see, not one occurred amongst working people; it was amongst the respectable classes, so called, that the delinquent would have been found. It is a pleasing recollection that I was enabled to take a part in being the first to open rather extensive grounds to the general public at certain times, without attendance and without apparent supervision. For the time the public was ostensibly its own order-keeper, and all were free to come and free to go that came clean and respectfully dressed. These open days have been discontinued, partly owing to a change of proprietorship, but none have been denied who have made previous application, and no gardener has been refused at any time, though everyone might not have received as much personal attention as could have been wished.

In the case of the open days to the public, which proved a source of pleasure to multitudes, I must here in all candour state that I received credit for that to which I could lay but slight claim. To see so many people with happy faces enjoying themselves was, no doubt, a great pleasure, but something a little selfish was at the bottom of the whole. The truth is that visitors at one time were so numerous, and came so at all times, that anything like attention to them would have worn-out a constitution of iron. The management, too, was liable to be disorganised—a thing very apt to be the case when little efficient help can be obtained, except from common labourers. In the summer months, after the toils of the day, just when cleaned and seated, there would come a ray at the door, and there might be a party or two come to enjoy the garden in the cool of the evening. I have known, when young, what it was to be so tired as scarcely to be able to undress. Such visiting involved also other considerations of a merely economical character. I soon found out, what seemed to me at one time rather mysterious, why some of our greatest gardeners in the largest and most popular places have often been in straitened circumstances, if not afflicted with the horrors of debt. In many places, unless they made up their minds to be stingy, it could not be otherwise. Self-defence, then, to save time and have the great bulk of visitors together, was one chief object of the open days; and even on this ground the practice is much to be commended, as it leaves the place more private at other times, and does not disarrange work by having to go or to send attendants with visitors.

I have slightly or rather delicately hinted at one attendant on visiting, and once for all I may as well out with it for the consideration of proprietors especially. As a class we have been distinguished for our hospitality, and I hope we shall ever be so, but in fine places, or where much new work is going on, the exercise of it may be no joke. The matter was alluded to in a company of gardeners at the Great International at Kensington, and a celebrated gardener, who has a splendid collection of plants under his care in a populous neighbourhood, stated frankly that in self-defence he had given up asking any visitor to his house, unless his personal friends or those he invited. He further stated that on being visited by a stranger, a gardener to a gentleman acquaintance of his own employer, he paid him every attention, but when the dinner hour came he told him he must leave for a time, but that he could in his absence amuse himself among the plants, or go to a house which he pointed out and get what he wanted. The visiting gardener so represented the matter to his employer that he wrote indignantly to the narrator's master, finding great fault with his apparent want of hospitality. The reply was quiet, but to the purpose—"When you pay me to treat stranger visitors I care not how many I treat. My wages will not permit me to do so.

Were I to ask even a portion of such visitors to my house I should soon be unable to keep a house over my head." I suppose that few could have been so cool and determined. I tell the true story, that proprietors may clearly see and understand that numbers of visitors are anything but an unmixed advantage to gardeners. Some to my knowledge do comprehend it and make an allowance to meet such a demand, others freely take it all on themselves. There are places, such as one I have known for more than thirty years, that no visitor to the gardens need go away without ample refreshment; I know of others where a gardener rarely takes any but personal friends to his house, as he has no more to do than take them to the mansion with the full approval and desire of all concerned. These instances, however, are but the favourable exceptions; were they more general a load of care would be taken from many a good-managing gardener's wife, who now may be frequently non-plussed when a party unexpectedly drops in upon her close on the dinner hour, when she has nothing extra in the larder, and is some miles from butcher and baker.

From what has been incidentally stated, I should modify a little your expression, "Gardeners should be admitted whenever able to call." This, you will perceive, involves another circumstance—that it would always be suitable to receive them and pay them proper attention. I have hinted that this would not always be the case. I have stated that in some cases there is not a direct forbidding, but a coolness as respects visitors on the part of employers. It has been painful to me to visit some places; the gardener seemed in a sort of dread of meeting with, or being seen by, any of the family. Now, the manly and straightforward is always the best. If my employer forbade visitors, whilst I was his servant I must not admit one; if I had liberty I should use it openly. Of course I would as much as possible avoid coming in contact with any of the family, but I could not condescend to sneak or hide so that visitors should not be seen—either open visiting or no visiting. In all cases where there is the least of this coolness, it would be well if visitors gave notice of their intended visit, so that any difficulty might be smoothed out of the way.

Again, the merely giving such notice by neighbouring gardeners I should consider in general as quite unnecessary. It would somewhat do away with the friendly, trusting, neighbourly feeling that so generally exists, and I think nothing of the kind required, because if such neighbours did not receive adequate attention at one time, they would see the reason, and find no great difficulty in repeating the visit. But in the case of gardeners from a distance, it would be well for them to make their intentions known previously. Supposing the gardener were from home, many would look on their visit, though they saw the place, like the play of Hamlet with Hamlet left out. Other reasons, which do not apply to large places with their staff of cultured assistants, apply to places well worth seeing; but where almost everything must depend on the head gardener, matters are apt to be thrown out of joint if the gardener leaves his working experience, or the gardener visiting must be content with a labourer attendant, with which he may be anything but satisfied. Besides, there can be little doubt that some employers grudge the time thus taken up with visitors, and it is advisable to give little reason for it. For the satisfaction, therefore, of visitor and visited, I should say it is better for strangers from a distance to write before coming, and then the gardener can make arrangements, so as to show them a little desirable attention.

I would conclude with a few words of advice to those visiting gardeners who, without giving any notice, just do as I do in this neighbourhood, make a visit when able to call.

First, avoid being so thin-skinned as to think you have not received enough of attention, or if the gardener should be forced to send an assistant with you instead of accompanying you himself, and which he might have been able to do if he knew of your visit. Look at the bright side of things and all will be well.

Secondly, you may see much to find fault with, but unless on terms of warm friendship keep all such matters to yourself. Most likely they are depressing enough already, and are too well seen without a visitor pointing them out. It must be a wonderful place if there is nothing to admire; treat of that—I do not mean in a white-washing way, but so as to create and maintain a kindly sympathy. It is worse than bad taste to give expression to what must give pain and do no good.

Thirdly, time your visits, so as to give the least trouble to the visited, and thus allow them to show their tangible kindness, if disposed, without wounding the sensitiveness of the

female department. A lady—and such truly is many a gardener's helpmate—is never more at home than when presiding at a tea-table.

Lastly, do not prolong your visit. Some men must make the most of a day at a place, when an hour or two would be ample. They forget that, if they can spare the time themselves, the visited gardener may have much to attend to. Give him no opportunity, whilst civil and courteous, of wishing in his heart you would take your departure. Short visits are one of the best receipts for happy future meetings.—R. F.

## ROOTS FROM THE BRANCHES OF THE VINE.

When aerial roots are abundantly produced on the Vine, the verdict mostly pronounced by gardeners is—Something wrong with the border. This is not always correct, as first-rate Grapes and plenty of air-roots are produced together on the same Vine. A close, moist atmosphere, early forcing, and, perhaps, insufficient root-action, are the circumstances most favourable to their production.

In an early vinery at Loxford Hall air-roots are freely produced. The house is started about the middle of December; the Vines are planted inside, but as the front wall is built on arches, and a prepared border is outside as well as inside, plenty of roots are outside; indeed, I am of the belief that if Vines are planted inside and allowed an equal chance of an inside and outside border, the greater portion of the roots will be outside the first season. This being the case, and as the surface of the border is freely exposed to the action of the atmosphere, in order to allow a season of complete rest for the Vines, the heat which has been absorbed during the summer is, to a large extent, given off. The Vines are watered with warm water previous to "shutting the house up," and the temperature is thus somewhat raised. A covering of fermenting material is placed over the outside border. Forcing is commenced with a gradual rise of the inside temperature; until the last week in January a night temperature of 65° is maintained. The border is not warmed in proportion, and although the roots are in a healthy condition, they do not act reciprocally with the tops, and in the necessarily close and somewhat moist atmosphere aerial roots are freely produced. The best method is to cut them off as fast as they appear.

Where borders are heated by hot-water pipes placed underneath them, air-roots are seldom produced. A very successful Grape-grower informed me that he raised the temperature of his Vines borders, by means of hot-water pipes fixed underneath them, to 70°, and he is seldom troubled with air-roots on his Vines. Of course he is an advocate for watering well, as a heated border insufficiently watered would cause the production of air-roots as freely as an unheated border.

In the late vinery the border was made in the same way, of the same materials, and at the same time as that in the early vinery, but no aerial roots have been emitted in the house, and yet the best Grapes have invariably been produced in the early house.

A more important matter than the production or non-production of aerial roots is to have the ground roots in a proper medium, and it is to the latter that I would wish to draw attention. In the early vinery above alluded to the roots were confined to a limited space by a brick wall set in cement; in the late house the roots could ramble outwards beyond the reach of the prepared border, and as the Grapes did not colour well, and became worse each successive season, it was determined to renew the border, as the surrounding material is not suitable for Grape-growing. The greater portion of the active roots were not in the border at all, they had gone beyond it; and as a large portion of active roots were necessarily in the inside border, all the roots outside the front wall were lifted, the old material taken out, and a new border made. The roots which were saved were laid out in this about 6 inches below the surface. At the time this was done the Vines were in full leaf, and carrying a full crop of Grapes, yet not a leaf hung down, nor did the leaves fall sooner than usual. This was done last October, and at the present time the Vines are again in full leaf, have a promise of as good a crop of fruit as ever, and I have no doubt but that it will be much improved in quality.

When a house of Vines fails, it is not always advisable to root out the Vines and plant young instead. An instance of renewing an old vinery occurred here some six years ago. The house is only 15 feet by 11 feet, and it contained one Vine of the Royal Muscadine; it had been badly managed, as it had

not ripened any fruit for twenty years. It was taken in hand in October, and the first step was to examine the roots. Where a border ought to have been, a large Acubia and some other common shrubs were flourishing; these were cleared off, and a trench dug out about 9 feet from the front wall and parallel with it. Digging carefully with forks, the old sour stuff was taken out, and the roots saved as much as possible. A couple of roots had struck downwards close to the front wall; these were allowed to remain. A foot of drainage was placed in the bottom of the excavated space, and over this some loose litter to prevent the compost, which consisted of turfy loam mixed with a small portion of rotted manure, from mixing with it. The very few roots which were saved were spread out over the border, and kept near the surface; the border was raised 6 inches above the path, over all was placed a foot of dry manure, and the operation was complete. The Vine was severely pruned, but the most promising of the young wood was saved; the wood was well painted with a mixture of sulphur and soft soap as a preventive to mildew. The Vines were not forced at all. The few bunches which showed were allowed to remain, and they ripened perfectly, and plenty of young wood was trained up, some fine young rods were saved, and a hundred bunches of Grapes as good as that variety usually produces were ripened next year. A gentleman called here the other day and asked advice about a house of somewhat old Vines; they are not satisfactory, and produce fruit of an inferior quality. Instead of rooting them out as he intended and planting young Vines, making, of course, a new border, I would do half the length of the house, lifting the Vines carefully, and watch the result of the operation for a year or two, and afterwards be guided by circumstances.—J. DOUGLAS.

## CHOICE STOVE PLANTS AND THEIR CULTURE.

A STOVE well stocked with tropical plants will always be gay. Take, for instance, a leaf of an *Acrostichum* or of a *Fittonia*—why, it is of itself a bouquet. So I offer these notes in the hope that they may lead others to give to their ideas as to the value of various stove plants, modes of culture, &c. Such, I am sure, would be read by many with great interest and be very useful. I invariably note down year by year how I succeed with certain plants, the soils I use, and the success I meet with.

The plants I intend to notice, when well grown, are very ornamental, though not met with in every collection. To grow stove plants well requires skill and very close attention.

*SONERILA MARGARITACEA*, a native of Java, is a most beautiful stove plant. I keep mine well pinched, in order to make it bushy. It is of quick growth, and the foliage is studded all over the surface with silvery spots. The flowers are of a pleasing rose colour. I do not allow the plant to bloom much, as I find the foliage more desirable than the flowers. I pick off most of the blooms. I generally give a good shift in March, and again in June. I water moderately. It flourishes in a gentle bottom heat, with plenty of atmospheric moisture during the season of growth, and requires to be shaded from the mid-day sun. In winter I place my plants so that they may be fully exposed to the sun, that damping-off may be prevented. The soil I use is fibrous sandy peat with plenty of silver sand, and good drainage is given.

*CYANOPHYLLUM MAGNIFICUM*.—This is a native of Tropical America, and when well grown there are few plants in our stoves that present a more noble appearance, the foliage being of a rich velvety green on its upper surface, and the under side purplish crimson. During the growing season I use the syringe freely, and I generally shade a little in the hottest part of the day. In order to form a bushy plant I take out the leader. I grow it in equal parts of fibrous peat and loam, with plenty of silver sand, and I add a little cocoa-nut refuse. I have invariably found that if the soil is exposed to the sun and kept turned for a few days before being used, it is much better for the plant. Good drainage must be secured.

*POTIOTIS ARGYREA*.—Native of Borneo. A beautiful plant of neat and compact habit; the leaves rich green, blotched with silvery white. Plants of it placed here and there about the stove are very effective. I grow mine in old leaf mould, fibrous loam, and fibrous peat, with plenty of silver sand, and I generally add some charcoal broken up finely. I water freely during the growing period, and it requires to be shaded from the sun. I grow it both as a pot and basket plant, and in either way it is very pretty.

*PAVETTA BORONICA*.—This is not often met with. The leaves

are spotted with white, shaded with pale green on a dark green ground, and the midribs are red. I grow it in fibrous peat and loam, with silver sand, using charcoal drainage. It requires pinching to form a bushy plant, and should be placed in a light part of the stove to bring out the beautiful tints of the leaves.

**CISSUS DISCOLOR.**—Native of Java. I shall not attempt to describe this beautiful plant as it is so well known, but I wish to state my mode of treating it. When well grown there is not a more lovely plant. Although it is to be found in most collections, very rarely do we see well-grown specimens. Being of rapid growth it requires a rich soil. I grow it in sandy peat, fibrous loam, old leaf mould, cow dung (the older the better), and silver sand. In this compost it will soon make a fine specimen if plunged in a gentle bottom heat. Care should be taken not to syringe the foliage, for wherever water falls it destroys the metallic lustre. I place the plant where it has enough atmospheric moisture, but I never syringe it. I grow it on a trellis, and trained up the supports of my stove along with *Echites rubro-venosa* and *Aristolochia ornithocephala*.

**ANTHURUM SCHERZERIANUM.**—Introduced from Costa Rica. This is of easy culture, and produces an abundance of brilliant scarlet spathe, which last for a long time in good condition. I grow mine in sphagnum and fibrous peat, and I use charcoal drainage. In this way it does exceedingly well.—F. P. L.

### LYCHNISES AS BORDER FLOWERS.

AMONG the many beautiful flowers cultivated for border decoration, I may safely introduce to the notice of the readers of "our Journal," the beautiful family of *Lychnis*, one not so numerous as many other families of border plants, but for interest and brilliancy of colour scarcely to be surpassed. Some are natives of our own land, and I would ask, What is more interesting than the Ragged Robin (*Lychnis Flos-cuculi*) of our dells, woods, and moist meadows, its ragged blooms peeping up early in summer through brambles and other undergrowth, and displaying their lively colours?

Then, there is *Lychnis diurna*, *vespertina*, *Viscaria*, and of late we have learned to call, what used to be named *Agrostemma Githago* (Corn Cockle), *Lychnis Githago*—all interesting and pretty, even in their native homes, but when we turn our attention to the charming varieties in cultivation, we are constrained to admit that these are much more brilliant in colour.

Some of the taller kinds are well adapted for shrubberies and large borders, and on account of their upright habit and brilliant-coloured flowers ought to be much more cultivated than they are at present. Some of them attain a height of from 3 to 4 feet. Among the taller kinds may be noticed *Lychnis dioica alba flore-pleno*, *rubra flore-pleno*; *mutabilis*; and *chalcidica coccinea*. Among those of dwarfier habit may be noticed *Lychnis Flos-cuculi alba flore-pleno*, *rubra flore-pleno*, *Hageana*, *fulgens*, *diurna*, *sanguinea*, and *grandiflora*. Those with double flowers are very desirable; they make a splendid show, and are useful for cutting for bouquets on account of their brilliant colours. Among those of very dwarf habit may be noticed *Lychnis pyrenaica*, *quadridentata*, *sibirica*, *alpina*, *lota*, and *neglecta*, and *coriaca*. There are others which are also useful for borders and rockwork, and which will repay any amount of labour bestowed upon them.

Most of the cultivated kinds are impatient of stagnant water; see that they have thorough drainage. A moderately rich porous soil is indispensable to their well-doing. The dwarfier kinds may be treated like alpine plants in pots, and if thought desirable the pots can be plunged in rockwork and other places, seeing that they do not suffer from lack of moisture. Some of them may be raised from seed; others may be propagated by shoots and divisions. If cuttings be taken they should be put in sandy soil in a rather moist shaded situation, with a hand-glass or frame over them. Old plants may be divided in the autumn or spring. Cuttings may be taken off while the plants are growing, and when they have attained a moderate degree of firmness. It is good practice, where there is a choice collection of these beautiful plants, to lift the more tender kinds and keep them in a dry, cool pit during the winter, giving them air on all favourable occasions, as they are liable to suffer from damp.

Seed may be sown early in spring in pots or boxes in a cold frame, and later in spring it may be sown in the borders. When the seedlings are large enough, they should be pricked out in beds or boxes as thought best. It is advisable, after pricking them out, to use a little shading until the young plants have

established themselves, but not to draw up the plants, as that would prove injurious to their well-doing. When large enough they may be transferred to beds or borders, where they may remain to bloom, and will repay with their beauty all the care bestowed upon them.—M. H., *Acklam Hall, Middlesbrough-on-Tees*.

### KITCHEN GARDEN CROPPING—BROCCOLI CULTURE.

I SAW two or three weeks ago that a correspondent was complaining of his Broccoli crop. I always plant Broccoli after Strawberries, the ground being trenched and well-manured. The cropping runs thus:—Strawberries, Broccoli, Celery, Onions, Cabbages. I find from experience that the firmer the land is the better. I never let Strawberries stand longer than two years, so that the ground is in good heart for Broccoli. Growing large succulent plants is one thing, but growing Broccoli is another. Immediately the Strawberries are gathered, which is here in the last week in July, I cut the plants up with a sharp spade, and, with the mulching, all is soon burnt on the ground, and the ashes spread over it, giving a rough rake over. I now set the lines out 3 feet apart, planting with the iron bar. The operation is merely making the holes, putting in the plants, and with a water-pot washing in the surface soil. You then get good sturdy plants, and, to use a garden phrase, they ripen before the autumn, and they are enabled to stand our severest winters. I generally sow the main crop on the 1st of April, and plant from the seed bed.—K. GILBERT, *Burghley*.

### VAGARIES OF THE LABURNUM.

AS the question of the origin of sporting and of varieties has, during the past few years, received so much attention both in reference to the introduction of new fruits and flowers, and to the principles which Mr. Darwin has drawn from these sports, I am induced to forward you an account of a sport which I have carefully noted, and of which I send you specimens. I am the more induced to do so, as in Mr. Darwin's book on "Varieties," in the part relating to plants there are few publications more often quoted than the "Cottage Gardener" and its successor.

In the well-known garden of Mr. Kitley, Greenway Lane, Bath, within sight of the road, on a dry brashy soil two Laburnum trees distant 100 yards apart, one-half of which is the purple variety, the other the ordinary yellow. These varieties are intermixed in the trees. In one of them the yellow, of most luxuriant growth, preponderates; in the other, the purple, with its smaller leaves and shorter blossoms, prevails. This obtains not only over the trees as a whole, but in their respective branches. There are 6 or 8 feet of purple, then one or two patches of yellow within a foot or two, exactly as if buds of the yellow had been inserted in a branch of the purple kind, these yellow buds not throwing out wood but flowers only.

The singularity of these trees does not end here; at various parts of the trunk and branches, both small and large, there spring out specimens of the purple Cytisus, with its peculiar foliage and bloom not the least modified by the Laburnum. At first sight the presumption is that a bud has been inserted, or a seed casually vegetated, but a close examination of various parts wholly destroys that theory, as this *Cytisus* springs out at the end of some twigs. Looking at the tree from a distance you might suppose some epiphyte was there growing, like the *Mistletoe* or the peculiar excrecence of the Birch.

The trees are in the fullest vigour, at least thirty years old, with bark as smooth as a sapling. Mr. Kitley presumes that the original stock was the ordinary yellow Laburnum on which the purple was grafted, and the vigour of the tree has been such that the root-action of the yellow has overcome the tendency to the purple, which is always of less free growth.

What shall I say about the purple Cytisus? I am fairly puzzled, unless what we call the purple Laburnum is only a sport from the purple, and not from the Laburnum. If so, the case is the more interesting, as we should have an example of the activity of root-action overcoming the purple variety, which, again, was reverting to its original type.

I should say that near these trees is a fine specimen of the yellow standard Cytisus, which, from its vigour, shows that the soil and site suit the tribe well, whereas in the valley, notwithstanding every care, it does not thrive. For years past in our park specimens of all sizes have been planted, scarcely one of which now remains, except in so stunted a condition as will

insure their condemnation ere long by the "Surveying Committee."

The bearing sports like the one I have endeavoured to describe have on the interesting question of the influence of the stock on the scion, of the tendency to revert to the original type either in a time of very vigorous growth or when vitality is low, I need not refer to.—JOHN S. BARTRUM.

[The specimens sent by Mr. Bartrum fully sustain his statements. We cannot add more to the following note which we published a year or two since. *Cytisus Adami* was originally produced upwards of forty years ago in budding *Cytisus purpureus* on the common Laburnum. In this process it is supposed that a cell of the one species became divided and united to a cell of the other, and the result has been a plant producing not only flowers of each species separately, but others partaking of the characters of both. There are other instances in the vegetable kingdom in which a similar union of cells is believed to have taken place, but *Cytisus Adami* is the best known and best established. Mr. Fish has added the following interesting notes on the subject:—"The changes produced on the Laburnum when grafted are sometimes wonderful and wholly unaccountable. We have rarely seen the common or Scotch Laburnum sport into other varieties. We recollect of only one instance in which flowers of purpurascens appeared. But if you graft either of the Laburnums with *Cytisus purpureus* or *Cytisus alpinus*, the vagaries which sometimes take place are astonishing. I can see any day a small standard of *Cytisus alpinus* which was grafted with *Cytisus purpureus*, and on the same branch will sometimes be found small pieces of yellow and purple, and at the very point strong shoots of the *Cytisus alpinus*, the 'blood' of the stock finding its way through the more weakly growth of the scion. What is remarkable is, that grafting or budding with one variety will frequently, as the plant grows, present you with three or four varieties, or what are called 'species.'"—EDS.]

### CATTELL'S ECLIPSE BROCCOLI—VEITCH'S ASHLEAF POTATO.

I wish to direct the attention of your readers to one of the best of the Broccolis in cultivation—it is CatteLL's Eclipse. It is close, compact, firm, and produces a good head; but I recommend it strongly because it is so late. I had it in use up to June 1st, which, considering the dryness of the season, is very good. This was grown side by side with several other sorts, and it began to come in just as the other kinds were over. I would recommend all who have not tried it to sow a little at once, and I am sure they will be glad of it next May and June. It can be, and has been, cut later than I have stated. It was shown at the International Horticultural Exhibition.

Another very useful vegetable is Veitch's Improved Early Ashleaf Kidney Potato. I can now (June 6th) finger out some fit to use. The tubers were not forwarded in any way, but planted in the usual mode.—J. B. P., Tilburston Lodge, Godstone, Surrey.

### CUTTING ASPARAGUS—EARLY FRAME POTATO.

In answer to "R. F.'s" request in page 342 for the experience and opinions of others on this subject, which well deserves the attention of Asparagus-growers, I have adopted "R. F.'s" plan for some years. I cut all the shoots, large and small, and thus I believe we have many heads of Asparagus that would otherwise remain dormant. I begin to allow a few of the middle size to run up after I have been cutting six or seven weeks. The largest are too tempting to leave, as the Asparagus here is small in general, consequently, I think, on the cold nights.

I have another request of "R. F." to answer about some Early Frame Potatoes that he had lost, and of which he could not remember the name. I have a few of the old sorts true, and I think I have that which he means. I believe it has a pinkish haulm when forced early, and a small, round tuber. The name under which I have it is Martin's Early Frame. If I am right I shall be pleased to give "R. F." a few, and I hope to be able to meet him at Oxford next month, when he can see them.—T. ELCOMB, Rhing Gardens, N. Wales.

CHANGING COLOUR OF PRIMROSES.—I have about half a dozen differing in colour from yellow to a very dark purple. This change was caused by being yearly transplanted into richer

soil. They first came an orange colour, then a light red, and eventually purple. The colours of flowers may be changed by certain additions to the soil in which they grow. Powdered charcoal deepens and intensifies the flowers of the *Dahlia*, *Rose*, *Petunia*, &c.; carbonate of soda reddens *Hyacinthus*; and superphosphate of soda alters in various ways the hue and bloom of other plants.—W. F. HATON.—(*English Mechanic and Mirror of Science*).

### CRYSTAL PALACE SHOW.

JUNE 11TH.

THIS was the second and last show of the season at the Crystal Palace, and, as compared with its predecessor, there was a considerable falling-off in the number of large specimen plants exhibited, and which, without the assistance of others belonging to the Crystal Palace Company, would not have sufficed to fill the staging. There was not the same long array of stove and greenhouse plants in flower that there was at the previous show, while those remarkable for their foliage were only to be found in the mixed collections. Such plants can still be spared in a large building like the Crystal Palace, where that which is small looks smaller than it really is. Although there was a falling-off in this direction, the addition of classes for variegated *Pelargoniums* brought a numerous entry, and the competition in dinner-table decorations was spirited, and excited great interest. Although this feature will be reported on by a connoisseur who has given especial attention to the subject, it may be remarked that among the arrangements there was more originality than in exhibitions of a similar kind of late years, and, on the whole, better taste. There were more departures from the stereotyped March stand, which, however elegant, one gets tired of always seeing; there was a more plentiful introduction of grasses and flower sprays, tending to give an airy character; but there was also in too many instances a tendency to overload with flowers, and to give a flatness of surface, neither of which is pleasing.

Among the stove and greenhouse collections there were many specimens which had appeared at Kensington on the previous Wednesday, such as Mr. Baines's magnificent *Ixora coccinea*, *Draecophyllum gracile*, and others. The same exhibitor had also a large plant of *Dipladenia amabilis*, covered with flowers, large and beautifully fresh and bright; a splendid plant of *Ixora javanica*; and a very large *Azalea delavayi*, of a most formosa, quite a mass of bloom. Mr. Williams, of Holloway, sent *Anthurium Scherzerianum*, with about two dozen spathe, a large *Phoradendron proliferum*, but not in full flower, and a fine *Erica depressa*, together with other good specimens. Mr. Peed had a fine *Allamanda grandiflora*; Mr. Ward, *Statice profusa*, very well bloomed; and there were good specimens of *Aphelexis*, *Heaths*, *Genetilis tulipifera*, *Draecophyllum gracile*, *Stephanotis floribunda*, and *Clerodendron Balfourianum*. The prizetakers in the nurserymen's class for ten were Mr. Williams, and Messrs. Jackson & Son; in the amateurs' class for the same number, Mr. Baines; Mr. Peed, gardener to Mrs. Trevellick, Lower Norwood; and Mr. A. Wright, gardener to C. H. Compton Roberts, Esq., Regent's Park. For six, the prizes went to Messrs. Ward, Carr, Wilkie, and A. Wright.

In mixed collections of flowering and fine-foliated plants, Mr. Baines again exhibited his large *Alocasia metallica* and *Gleichenia spenceana*; Mr. Carr, gardener to P. L. Hinds, Esq., who was second, had a very good specimen of the former plant, and *Coccoloba plumosa* some 10 feet high; and Mr. Young, gardener to W. H. Stone, Esq., M.P., Leigh Park, Havant, sent *Sanchezia nobilis variegata*, but some of the leaves appeared to have suffered from drought on the journey, though the specimen was good. Equal third prizes were given to Mr. Young and Mr. Wright.

For a group of stove and greenhouse plants arranged for effect, Mr. Peed was first with one consisting of large *Crotoms*, *Palms*, *Heaths*, *Pimeleas*, &c., with Maidenhair Ferns and Cuckoos in front. Mr. J. Wheeler was second, and Mr. Reid, gardener to Mrs. Hunt, Sydenham Hill, was third.

Heaths were arranged along one side of the transept, and in several of the collections were excellent, especially in those from Messrs. Jackson & Son, Mr. Morse, and Mr. Ward. Of *tricolor elegans*, *Pastourea*, *Fairriana*, *obovata*, *tricolor Wilsoni*, and *carinata* *Barnesi*, *vestriosa grandiflora*, and *retrofracta magnifica*, the specimens were large and in beautiful condition. The prizetakers were—for eight, Mr. Morse, Epsom, and Messrs. Jackson & Son equal first, among nurserymen; and Mr. Ward, Mr. J. Wheeler, and Mr. Peed, among amateurs. In the open class for six, Mr. Ward, Messrs. Jackson & Son, and Mr. Carr took the prizes.

*Azaleas* filled the opposite side of the transept, and with some exceptions were much the same as those noticed last week. Mr. Carson was first for eight, Mr. Wilkie second, Mr. Woodward, gardener to Mrs. Torr, third; for six (nurserymen), Mr. Williams, the only exhibitor, but a first prize; for six (amateurs), Mr. Woodward, Mr. Peed, and Mr. J. Wheeler took the prizes.

Of *Orchids*, there was a good and rather large display. Mr. Williams was at the head of the nurserymen's class for ten, with several of those he had exhibited on the previous Wednesday, *Acidites Larpentei*, *Saccolabium guttatum superum*, with three fine racemes, and a fine specimen of the yellow and orange *Dendrobium densiflorum*. Messrs. Maule & Son, Bristol, took the second position with a col-



G. W. Henesge, rosy purple, is a very pleasing free-flowering kind, with fringed petals.

MR. JOHN WATERER, of Bagshot, who has held his annual exhibition at the Royal Botanic Society's Gardens, Regent's Park, for upwards of twenty years, has this season again a good display, although his plants have suffered from the same drawbacks as those already adverted to. Still the exhibition, as a whole, forms, as it ever does, a pleasing picture. Joseph Whitworth, Mrs. John Penn, Michael Waterer, Concessum, Everestium, which have been noticed several times before, well maintain their good character; and of newer kinds the following are very fine—viz., Frederick Waterer, with large trusses of bright crimson flowers; Madame Masson, white, with yellow spots; Mrs. William Agnew, soft pale rose, edged with brighter rose, and having yellow spots; Lady Southampton, bright rose; and Decorator, with large trusses of intense crimson scarlet flowers, and the plant of good habit, and constant in blooming.

## THE AMATEUR GARDENER.

(CHAPTERS NOT IN WALTON.)

(No. 1 continued.)

CIVIS.—Are the varieties of Strawberries in many?

HORTATOR.—I could furnish you with a list as long as a lawyer's brief, and as profuse in professional technicalities; but many of them are so similar that Dr. Hogg himself would be puzzled to discriminate a variation from that so named. There is but one objection to his namesake Strawberry—its constitution is delicate.

CIVIS.—A fruit with a delicate constitution! Well, I am amused! It is the first time I ever heard such a term applied to fruit.

HORTATOR.—Nevertheless, it is correct. Plants, fruits, and flowers vary as much in their constitution as do the family human, and this said Strawberry cannot bear the bleak cold wind of an exposed situation, but revels in warm sunshine and in southern breezes.

CIVIS.—My friend, you are becoming poetical.

SYLVIA.—Prosy rather, thus to dwell on the constitution of a Strawberry; had his eloquence been elicited in a description of my Roses, I would have pardoned his inflated expressions.

CIVIS.—Bless me, what a breakfast I have eaten! either the Strawberries or morning sir has given me an unconscionable appetite.

SYLVIA.—Call it not "unconscionable," or you unintentionally reflect upon your host. See the mountains of Strawberry stalks upon his plate, and as for eggs and slices of bread and butter they have vanished like dew in sunshine.

HORTATOR.—Ah, my friend, believe me, it is the early morning air which has effected this. Remember the old distich—

"Early to bed, and early to rise,  
Makes a man healthy, and wealthy, and wise."

CIVIS.—Hungry, but not wise, for I don't doubt the wisdom of indulging thus early in Pomona's profuse gifts.

SYLVIA.—Fear not!

CIVIS.—Well, time, like the Strawberries, has vanished, and I must say farewell. I thank you warmly for your generous hospitality and this charming introduction to horticulture.

HORTATOR.—Thanks, my friend, are only due to you for your kind companionship. Pray make a speedy return, and if you will condescend to become the pupil of Sylvia and myself, I think we shall find an apt scholar, not only in the cultivation of Strawberries, but flowers also.

CIVIS.—At all events a willing one; but my aptitude I doubt.

SYLVIA.—Despair not. When Hortator took me in hand my knowledge was confined to distinguishing a Cabbage from a Potato, a Rose from a Hollyhock, and now I flatter myself I could read even Hortator himself some lessons.

CIVIS.—Well, farewell. You may rely upon my speedy return, but be careful not to press your invitation too strongly lest you should regret your generosity.

## NO. 2.—A LITTLE LATER IN THE MONTH OF JUNE.

CIVIS.—Good day, Hortator.

HORTATOR.—Ah, Civis! good day. I am heartily glad to see you.

CIVIS.—You perceive the trouble your generosity has involved upon you. Like a bird which has been fed and petted in the winter, disappearing in the spring, returning again in inclement weather, accompanied by another of his species, so

you see I have ventured to bring my friend Rusticus with me, who has often heard of, and has long wished to see, your celebrated garden.

HORTATOR.—Welcome equally both. But call not my garden "celebrated," or you may raise a spirit of pride within my heart which would ill comport with the simplicity of a gardener, or the humility of a Christian.

RUSTICUS.—Nay, sir, it is indeed the talk of the country and the envy of all aspiring amateurs.

HORTATOR.—Indeed it should not; there is nothing in it that is remarkable, and certainly nothing that an industrious and persevering man with ordinary taste may not easily effect with a very moderate outlay.

CIVIS.—I have always understood that gardening is a very expensive luxury, and have frequently heard amateurs condemned as extravagant who have indulged in its pursuit.

HORTATOR.—If their means are very limited, and their ideas very expanded, the charge may indeed be just; but did the accusers ever reckon up the cost of a dinner party or a box at the opera, and see how far the indulgences of such luxuries would go in the purchase of plants or flowers for a parterre? And it is seldom indeed that a horticulturist has the taste or inclination to indulge in both.

RUSTICUS.—What a beautiful lawn! why it is as soft as velvet and almost as smooth too. What attention it must require to keep it in such order.

CIVIS.—What a bowling-green it would make!

HORTATOR.—Ah, Civis! city games have, I see, taken deep root, and will crop up.

SYLVIA (who had unseen joined the party).—Like horticultural phrases, my good husband.

CIVIS.—Madam, good day (taking off his hat), I thank you heartily for coming to my rescue with that home thrust.

HORTATOR (calling to the gardener).—Richard! My friends here think we must have a very troublesome business to keep our lawn in such neat trim. As the work principally devolves upon you, perhaps you will best tell them how we manage it.

RICHARD.—Well, sir, in the first place the lawn must be good turf, obtained, if possible, from an old lane or common, and when properly laid down, which every gardener knows how to do, the great secret will be to keep it frequently rolled and mown; it should be mown at least once a week during the growing season, and the more frequently it is rolled the better.

RUSTICUS.—Do you use the scythe or machine?

RICHARD.—We use the machine, except perhaps once, or may be twice, in the season. But bless you, sir, see the labour it saves! Why, with the help of a lad I can do as much work in one hour as I could do in four; besides, I am not obliged to work only when the dew is on the grass, which is a mighty help.

RUSTICUS.—What machine do you use?

RICHARD.—Well, sir, we use Green's, and at t'other place I used Shanks's; but I am told there is a new American one with a big name which is talked much about.

RUSTICUS.—You mean the Archimedeon.

RICHARD.—Yes, sir, that's it; but, la! sir, it's these croquet games that drive us gardeners mad, they spoil all our lawns.

HORTATOR.—And tempers too, Richard, I'm afraid sometimes.

RICHARD.—Well, master, it is trying to see those iron things stuck into 'em, and the ladies and gentlemen frisking about 'em like lambs in our cow pasture, mauling and mauling the grass.

RUSTICUS.—But are not these verges difficult to keep in order?

RICHARD.—Well, sir, they be, and to save trouble I've known gardeners cut 'em every year with the "half-moon" till they are as narrow as ribbons, and then to my eye they look miserable-like.

HORTATOR.—Have you been in Paris Rusticus? if you have, you would see how they manage there with Ivy as verges, instead of grass, especially in the private gardens at the Louvre. The Ivy is planted and pegged down, and only now and then requires to be trimmed-up. I assure you the effect is excellent.

—HORTATOR.

POTATO CROP OF NEW YORK STATE.—The total Potato crop of the State of New York, in 1869, was about 25,000,000 bushels. The six great Potato counties are Washington, Seneca, Saratoga, Monroe, St. Lawrence, and Genesee. Only one other county (Oneida) produces 300,000 bushels; three others 500,000; one, 500,000; six, 400,000. New York county returns a crop of 1700 bushels. The entire crop of the State, 25,000,000 bushels,

is raised on 254,403 acres of land. The three counties in the State which produce the most Potatoes, join each other—viz., Washington, Kenschlaer, and Saratoga, their aggregate production reaching within a fraction of 2,500,000 bushels, or more than one-eighth of the total of the whole State.—(*Boston Cultivator*.)

#### PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

**MORMODES COLLOSUS** (Large-flowered Mormode). *Nat. ord.*, Orchidaceae. *Limn.*, Gynandria Monandria.—Native of the mountains of Central America, at 7000 feet elevation. Flowers pink, with yellow margins.—(*Bot. Mag.*, t. 5840.)

**PLECTRANTHUS COLOIDES** (Coeleus-flowered Plectranthus). *Nat. ord.*, Labiate. *Limn.*, Didymia Gymnospermia.—Native of the Neilgherry hills, Hindostan. Flowers purple and white.—(*Ibid.*, t. 5841.)

**HECHTIA** (?) **GRIESEBRECHTII** (Giesbreght's Hechtia). *Nat. ord.*, Bromeliaceae. *Limn.*, Hexandria Trigynia.—Native of Mexico. Flowers insignificant, but odorous, like those of the Hawthorn.—(*Ibid.*, t. 5842.)

**MILTONIA WARSCEWICZII** (Warszewicz's Miltonia). *Nat. ord.*, Orchidaceae. *Limn.*, Gynandria Monandria.—Native of Peru. Flowers brown, purple, and yellow.—(*Ibid.*, t. 5843.)

**OPHRYS SPECULUM** (Looking-glass Ophrys). *Nat. ord.*, Orchidaceae. *Limn.*, Gynandria Monandria.—A ground Orchid. Native of grassy hills in Southern Europe and Algiers. Flowers purple, steel-blue, and yellow.—(*Ibid.*, t. 5844.)

**CLEMATIS—Princess Mary**.—"A charming new Clematis, of the Florida race, descended from Clematis Standishii, and one of a fine batch recently obtained by Mr. C. Noble, of Sunningdale. It is the most distinct break we have yet seen from the violets, greys, and whites which are the ordinary colours of the large-flowered forms of Clematis; and its very pleasing shade of rosy pink will render it a most welcome acquisition.

"The niche which this novelty is adapted to fill is that of an early-blooming hardy or conservatory climber. It is of free but slender growth, with quite the habit of *C. Standishii*, and, like that plant, is adapted either for pot culture or for planting out in the conservatory, or against a conservatory wall. As a spring exhibition plant, blooming freely about the month of May, this, with others of its race, to be highly recommended. With the double white *C. Fortunei*, the double blue *C. John G. Veitch*, and the hybrids Mr. Noble has introduced to public notice—*c.g.*, *Miss Bateman*, *Albert Victor*, *Lady Londesborough*, &c., a very charming group might be made up. Though the exact percentage of the individual seedlings has not been preserved, we learn from Mr. Noble that *C. Standishii*, *Fortunei*, and *Sophia flore-pleno*, with *C. lanuginosa* (the two former principally the seed-bearers), were the parents of his hybrids—a race of free-blooming, early-flowering varieties, which, possessing vigour of growth, combine also fine form and unwonted substance of petal, with some exquisite tints of colour. We learn, moreover, that the plants are perfectly hardy."—(*Florist and Pomologist*, 3 s. iii. 121.)

#### A DISTRICT WITHOUT SONG BIRDS.

I AM an old man, more's the pity; but nothing makes me feel more old and old-fashioned than the pleasure I felt, living in an atmosphere of railway literature, at reading "Hortator's" imitation of dear old Isaac Walton's style in your number of May 26th, upon one point in which I feel inclined to add a very few lines. It is a common observation that most of our every day enjoyments are so much a part of our surroundings, that we do not feel them to have existed until some accident deprives us of them. Light, heat, sweet odours, grateful tastes, soft colours, are scarcely appreciated until their absence is felt; but the want of the presence and song of birds is, fortunately, so uncommon in this country, that "Hortator's" charming description of the enjoyment they add to the gardener's pursuits led me to add my late experience, for the first time, of the total absence of feathered songsters.

I travelled during the past May from Marseilles to Genoa without having seen or heard the note of one bird; the savages had eaten them all. I had recoiled with horror from the banks of yellowhammers and robin redbreasts seen in the German markets, but I had no idea until now of a whole country strip of birds. I saw three instances of *chasseurs* equipped with double guns and fully armed to do death unto a breeding linnet, but I never saw the linnet; and though I felt an uneasy want, I never fully realised what that want was until, in the Cascini at Florence, I again heard the full chorus of blackbird,

thrush, and nightingale, and felt that such was one of the enjoyments given by a merciful Creator to soothe the labours and sufferings of fallen humanity; and while sitting in my garden overseeing the bedding-out, I never so thoroughly enjoyed the intimate and confident company of blackbirds and thrushes hopping about, jerking their tails, and filling the air with their wood notes wild. I shudder at the idea of a former gardener of mine, who asked his mistress to persuade me to cut some magnificent hedges because they sheltered vermin. "What vermin?" said she. "Why, them blackbirds and thrushes." The worst punishment I could wish for such a Vandal would be one spring in a land devoid of feathered song, and for the vile reason that the Frenchmen had eaten the songsters.—C.

#### SOCIETY OF ARTS EXAMINATION OF GARDENERS.

##### PRIZES.

George Downton, Richmond Parochial Library, gardener—Floriculture, first-class certificate, with first prize of £5, and the Royal Horticultural Society's prize of £5. Fruit and Vegetable Culture, first-class certificate, with first prize of £5, and the Royal Horticultural Society's prize of £5.

William Jones, Liverpool Institution, gardener—Floriculture, first-class certificate, with second prize of £3, and the Royal Horticultural Society's prize of £3. Fruit and Vegetable Culture, second-class certificate, with the Royal Horticultural Society's prize of £3.

##### CERTIFICATES.

Name.	Fruit and Vegetable Culture.	Floriculture.
Bearpark, E. Hull .....	2nd class	—
Davis, Walter, Richmond .....	2nd class	1st class
Downton, George, Richmond .....	1st class	1st class
Ford, C. Bury St. Edmunds .....	—	2nd class
Higgs, J. C. Southampton .....	—	2nd class
Hogg, Thomas, Glasgow .....	—	2nd class
Jones, W. Liverpool .....	2nd class	1st class
Kemp, T. Bury St. Edmunds .....	3rd class	3rd class
McCarthy, John, Stamford .....	2nd class	1st class
Read, William, Richmond .....	3rd class	1st class

#### NOTES FROM PARIS.

MANY times have I visited this gay capital, but never have I seen it in better guise than now. The weather, for May, was hot, even to July heat—hotter tenfold than when I was there in August last, when the cafés were closed and the boulevards only frequented by persons who wished to keep themselves warm with brisk walking. Then the café chantants were deserted, the merry-go-rounds had no riders, and the "concerts des Champs Elysées" were performed to empty benches. A bitter wind swept the streets, scattering the withering leaves of the trees far and wide. No wall was different: everybody was out, the "pâtisseries" had passed, and by the aspect of matters you would never guess that there were any "irréconciliables," and even the *affaire Pierre Bonaparte* seemed forgotten. And how charming the boulevards looked with the fresh tender foliage of the trees, which dust and heat had not as yet tried to spoil; and how beautiful were the Horse Chestnuts crowded with their white blossoms! True, the plants had not as yet been turned out into their beds, and so those places which are more or less dependant on them were not in such height of beauty as later in the season, but the freshness of the foliage was an ample compensation for this; for, after all that has been written on the parks, promenades, &c., of Paris, I am persuaded that the one great charm is the combination of foliage and buildings in the boulevards. Take the trees away and Paris would be beautiful, for the taste of Baron Hansemann and the power of Napoleon III. have made it so. But without them it would not be Paris. It is these planted streets, too, that mark the great advantage that it has over London, for in everything else pertaining to parks, &c., I firmly believe we have the advantage. Nowhere in Paris have they what we have in London—such parks as the Green Park, Hyde Park, and Kensington Gardens. They have, it is true, the Bois de Boulogne and the Bois de Vincennes, but then you must drive out some miles to see their beauties, while in London you have them in the very midst of the population—so much so, that we know that one of them has been selected as the chosen rendezvous of demagogues and agitators of all kinds.

Nor is this all. No place in Paris that I know, not even the Bois de Boulogne itself, can boast of such trees as we have in

Hyde Park and Kensington Gardens, those grand old Elms which Col. Sibthorpe, though much laughed at, insisted on including in our first great exhibition, and which gave it a character none since has attained to; and it is not a little remarkable that while we have been praising, yea, perhaps, overpraising the parks about Paris, French people can see in our charms we have been blind to, and envy us for the cool umbrageous shelter of our fine trees. It cannot, indeed, be denied that our parks were a disgrace to us for the manner in which they were (not kept, but) neglected. But a new and better state of things has been inaugurated; our British ediles have taken a hint from their French colleagues, and now order and beauty are maintained. No one, I think, can look at our parks, whether in spring or summer, and not admire the great change that has taken place, inaugurated by the Hon. William Cowper and carried on by his successors, and let us hope, notwithstanding all that has been said, not to be discontinued by Mr. Ayrton. Our people have not much in the way of beauty for their eyes to rest upon, and it is to be hoped that the best of all beauty, that of nature, may not be denied them.

It would be unfair in mentioning these matters not to refer to the subject of subtropical gardening. The most favourable place to see this in Paris is the Parc de Monceaux, and the warmer summers of France give an advantage to them which we do not possess in such matters. But can the Parc de Monceaux be compared to Battersea? I think not. I think that the marvellous achievements of Mr. Gibson are far beyond anything there; and after many years' acquaintance with both capitals, I can honestly say that the subtropical department of Battersea Park is the finest piece of gardening that has come under my notice.

But the boulevards beat us out of the field. Imagine what Oxford Street—at any rate that portion of it from the Circus to the Marble Arch—would be if planted. If instead of having one of the finest thoroughfares in the world so abominably disfigured by stalls of bad vegetables, estate fish, and every kind of unmentionable daintiness, there were a shady avenue of trees, what a glorious change it would be! We have tried it on a small scale near the Kensington Museum; whoever did it deserves it. I will not say to be immortalised, but to be set up in one of the trees, a spectacle for all the gamins who resort thither, for having planted such a tree as the Lombardy Poplar, the only one to which the epithet of ugly can be applied, and left out the Plane and the Ailanthus, which experience has shown thrive so admirably in the most crowded thoroughfares. However, let us hope a better state of things may soon be inaugurated. A master hand, Mr. McKenzie, has been entrusted with the planting of the Thames Embankment, and success there may induce trials in other quarters.

There is one other matter which deserves notice, and that is that so many of our smaller open spaces are private property, affording no enjoyment to the general public, and too often reflecting but little credit on those who have their management. If the cluster of squares in Bloomsbury, for example, were open—if they were treated, some as the Square de Montholon, and others as the Place Louvois or the Place de St. Jacques, I cannot think that the roughs would do them injury, while they would afford a treat to many who have not the privilege of living within the sacred precincts of the squares themselves. The beautiful squares in Dublin are so treated; while under private management they are also open to the public, and a great source of enjoyment they are. London can never be Paris, the two cities are at the opposite poles; but it is much to be hoped that a little more of the taste that has characterised so many of the alterations made in the French capital of late years, might be copied with advantage in the streets and squares of our huge and sombre metropolis.—D., Deal.

### CHINESE PRIMULA CULTURE.

THROUGH the energy and well-directed efforts of the hybridiser the Chinese Primula has of late years been so much improved, that it is now more than ever worthy of cultivation, and I find it one of the best of plants for the decoration of the greenhouse and conservatory, or for the drawing-room and dining table, at any time from November to April. If the puny, plain-edged flowers of years ago gave the grower any satisfaction for his trouble, he will now, if he adopt a good system of cultivation, be rewarded with some large, perfectly-shaped, high-coloured, frimbriated flowers of both the white and red varieties. Until lately there was a scarcity of good white Primulas, but now there is no difficulty in procuring

from any respectable nurseryman a good strain of seed that will produce 90 per cent. of thoroughly good flowers. A well-grown Primula should have fleshy and well-expanded foliage on stout and vigorous leafstalks, and the flowers should be set well above the leaves. Such a plant is exceedingly attractive. In order to secure these qualities the cultural system must be good throughout, and its details well applied.

Primulas being in especial request here, I always try to produce as perfect plants as I can, and if they will not do for the exhibition table, they have at least been pronounced excellent for the purpose for which they are intended.

I generally grow about three hundred; most of them become large plants in 8-inch pots, and to those who like to take up my plan, the following is my treatment. For the above number two different sowings are made—the first in February, from which the plants are expected to bloom in September and the following two months; and the second, or principal sowing, made in the last week in March. The plants obtained from the latter sowing are grown so as to be in full bloom in December, and onwards to the following May.

I sow in a mixture of peat and sand finely sifted, and use either shallow pans or pots half full of drainage. I raise the plants in heat—a Cucumber or Melon bed is an excellent place—and I keep the soil moderately moist and not exposed to the sun. When the plants have produced two seed leaves and are large enough to handle well I prick them out 1 inch apart in well-drained pots or boxes, using a compost of the same character as that in the seed pans. I then return them to the hotbed, and place them within 6 inches of the glass. When they have made about four leaves they may be potted in small 60-sized pots. I then return them to their former position. Air must be carefully and judiciously admitted at this stage.

After the roots have mostly reached the sides of the pots the next shift may be into 5-inch pots, and when the plants have established themselves in these I gradually increase the amount of ventilation to prepare them for their new quarters, which may be either in pits or common garden frames having a west aspect. Let the pots stand on a coal-ash bottom. For the first few weeks the plants will be too far from the glass, but rather than rob them of their coal-ash bottom sink the frame into the earth until the plants are within a few inches of the glass, of course afterwards elevating the frame as the plants require it. If they are found to do well here, which I do not doubt, they may occupy these places up to October, or until they are taken into the greenhouse; but they must be shifted into larger pots as they require it, and be allowed plenty of room as they increase in size. Grow them in an intermediate temperature, and when air is admitted let it be both at the back and front of the frames.

After the plants have had their final potting, and if the weather continues warm, the frames may be set upon bricks. Air so admitted will be found to strengthen the foliage very much; with the same object in view the lights may be thrown entirely off the frames for two or three hours in the mornings of growing days. Never let a strong sun shine upon them long at a time, but it will be beneficial to let the plants have the sun morning and evening, and a little air night and day.

The next thing to be referred to is the soil. This must be the very best the place affords. I prefer equal quantities of rich turfy loam not very light, turfy peat, road sand, or what some call drift sand, and leaf mould; then may be added one-fourth decomposed cow manure, and the same of silver sand and small charcoal. Thoroughly mix the whole together with the hands, and I think it will be found to suit the plants admirably.

I have now to speak of watering, to which considerable importance attaches, for I think it is a prime feature in the cultivation of the Primula. Water should be given in the morning, though on some days the plants may require it at night. Keep the soil in a moderately moist state, for if it is allowed to become saturated with wet, and should happen to be so when evaporation is slow, the plants will turn sickly and die off at the neck. I do not advise the application of manure water, for I have found it produce the same bad result—my reason for using the above rich compost.

For general decorative purposes I have not found any sorts so good as the common Primula sinensis fimbriata alba, and sinensis fimbriata rubra. The white and red Fern-leaved varieties have not such perfect flowers, nor such a compact habit, but they are well worth growing for distinction. There is also a salmon-coloured variety called fimbriata coccinea nova, which appears too delicate to thrive under the same con-

ditions of treatment as the commoner sorts. It is more apt to damp off; many of its flower stems damp off in an atmosphere in which the others thrive.

One great advantage the *Primula* possesses over most winter-flowering plants is that it is rarely, if ever, infested with green fly or other troublesome pests.

Doubtless the above sketch of my treatment of these beautiful plants will be found to differ in some points from the methods adopted years ago, or even at the present time, by many cultivators, but I have found it succeed admirably, and well the results have repaid me.—THOMAS RECORD, Lillesden.

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

A good breadth of dwarf and compact *Cabbages* may be sown for early Coleworts; also another bed of Horn *Carrots*. Water the late *Cauliflowers* most abundantly, likewise *Lettuces* for salads. Prepare heavy dressings of manure for *Celery* and *Leeks*, so as to be ready the moment rain arrives. Those who desire a good and constant supply of autumn and winter *Endives*, must make a full sowing forthwith. *Endive* is generally sown too thickly. Another good sowing should be made in the first week of July, and a second towards the middle of the month, after which the plant will not attain its full size. As soon as the plants are a few inches high, mow off the tops of the leaves with a scythe, cutting about one-third of the leaves away. This will stiffen the plants, and cause much heart to develop itself, also enable them to bear transplanting better. This is a good time for a liberal sowing of autumn *Turnips*. The Dutch or Stone are the best for the kitchen garden. *Mushroom spawn* should now be made without delay.

### FRUIT GARDEN.

Those who understand fully the immense importance of a thorough ripening of the wood of all wall or tender espalier trees, will, of course, pay some attention early in summer to thorough thinning and early training. Who can expect *Peaches* to perfect this process when the young wood is dangling from the wall until August? Fears at this period should have as much attention as *Peaches*; the best practice is to cut out a few of the watery and luxuriant shoots, by way of a slight thinning, in order to equalise the light, then to tie down the old stems or to nail down a regular sprinkling of the brownest, shortest-jointed, and earliest-made wood, and finally to stop the points of all the remainder left in the character of bracket-wood. The latter, if totally disbudded now, would cause the embryo buds for the next year to burst, whereas, if stopped, they will operate as safety valves for a period. In the early part of August these forthright shoots should be all cut back with the knife to about 6 inches or less in length. From that period all the sunlight possible will be wanted to perfect both fruit and blossom buds for the ensuing year.

### FLOWER GARDEN.

All newly-bedded plants will, during this hot weather, require daily waterings. The benefits of little basins round each plant will now be readily seen. Let the young shoots of all old *Fuchsia* stools be thinned out to five or six. Attend diligently to standard *Roses*; constant disbudding is necessary at this period, also keeping down suckers. Let every attention be paid to propagating a reserve stock to fill gaps, and let cuttings already rooted, or the remains of store pots, have kindly cultivation forthwith, in order to be ready to fill blanks. They should be kept in a shady border entirely by themselves, and should receive free waterings. The intensely hot weather has had the effect of shortening the duration of both *Pink* and *Ranunculus* blooms, and the season of each is rapidly coming to a close. Great attention must be paid to *Ranunculuses*, for if they remain in the ground too long they immediately make fresh roots; therefore, they must be taken up as they arrive at maturity, which is evidenced by the grass or foliage becoming yellow. Semi-double seedlings of good properties as to form and smoothness of petal, should be carefully preserved for the purpose of fertilisation. *Pink* pipings may be taken, cutting through the shoot immediately below a joint; these, inserted in light sandy soil under a hand-glass, will with common attention take root freely. *Panicles* require regular watering and shading, otherwise they are liable to be attacked by mildew, and the season is far from propitious for *Polyanthuses*, which are suffering from the continued drought. The buds of *Carnations* and *Picotees* may be reduced now, according to the strength of

the plants, but to insure large flowers not more than three ought to be retained on each. Remove all laterals as they appear, and attend to the destruction of green fly.

### GREENHOUSE AND CONSERVATORY.

Many of the popular beauties here being at this period of a somewhat ephemeral character, means must be constantly resorted to, in order to insure a constant succession of gaiety until the frost sets in, when *Chrysanthemums*, *Camellias*, *Chinese Primroses*, and several other midwinter flowers come in. The latter constitutes a division of business by themselves, of course, and lead the way to the forced flowers of returning spring. Those who keep a sharp eye on such matters will always take care to have a surplus stock on hand, after the massing is completed. Such stock should be most ample; not less, but more than is wanted, in order to provide against gaps in the flower garden, and to supply the various in-door demands. Everything remaining in store pots of the spring propagation should be potted off forthwith, and placed on or plunged in ashes in a sheltered spot—that is, sheltered from the winds. *Balsams*, *Cockscombs*, and other tender annuals for succession, should receive their last shift before they become potbound, and plenty of the *Achimenes* family should be potted off, some in large masses. A lot of the best *Scarlet Pelargoniums* should be selected for flowering next winter. These should be grown rapidly, and frequently stopped. Towards August they will become rather potbound; they must not, however, be shifted, but merely hardened in a very exposed situation until the end of September, in order to have them sturdy and very short-jointed. A light and warm shelf near the glass will thus make them objects of great interest all the ensuing winter. The *Hybrid Perpetual*, *Bourbon*, and *Tea Roses*, which have been cut from all the spring in these structures, should now be compelled to rest. They should be placed in a somewhat shady position, and all disposition to break into young buds sedulously kept back. They may remain thus for a month, when they should be taken out of their pots, partially disrooted, and inserted in fresh pots, surrounded by rich compost. By the month of September the pots will be filled with new roots, and will, under good management, bloom most of the ensuing winter. Let the *Fuchsias* have ample supplies of water, and provide succession stock in case of exhaustion. The early-flowering *Pelargoniums*, now rather exhausted, should have the bulk of their tops removed and made into cuttings. The old stools may be then thrown on their sides, in a shady situation, until they break buds half an inch in length, when they must be disrooted and repotted in rather reduced pots. Exhausted *Cinerarias* may be set in an old frame or pit and fumigated; they may then be cut down and turned out into a raised bed in the garden. They will there feed, and produce an abundance of suckers, by a little attention in regard to watering, &c. The conservatory being thoroughly relieved of all superfluous stock, nothing remains but to carry out a cleanly system of cultivation. All available surfaces should be moistened with water morning and evening, thorough ventilation obtained, and a thin canvas screen kept on during bright sunshine.

### STOVE.

Frequent syringings accompanied with moist floors and other surfaces, will be useful with the ordinary stove stock. With regard to the *Orchids*, some little moderation is necessary, especially when the weather takes a sudden change from a sunny to a cloudy condition. Some of the *Orchids* will now require a little assistance in the way of topping-up, and a watchful eye must be kept as to insects. *Barkeria spectabilis*, the *Lycastes*, *Odontoglossum grande*, *Epidendrum Skinneri*, &c., seem much to enjoy the temperature of a cool greenhouse, without fire; the weather has, however, been unusually warm.—W. KEANE.

## DOINGS OF THE LAST WEEK.

### KITCHEN GARDEN.

OUR work has been much regulated by circumstances, as, from scarcity of water, we could not do what we wished, and up to to-day (June 11th) we have had no rain, and scarcely a perceptible deposit of dew. *Cabbages* and *Cauliflowers*, notwithstanding the drought, are succeeding well, and so on the whole are *Peas* as yet, but the *Cabbages* keep the sun from the ground, and the *Peas* and *Cauliflowers* are mulched with dry litter from the want of something better. Dry litter is of some assistance in keeping off the force of the sun, but it does nothing in comparison with decayed manure to keep a dry, searching, hot air out. If this dry weather continue we shall

have to mulch a great deal if we mean to keep things alive, and then we may be beaten after all.

In sowing Turnips, Radishes, Lettuces, Peas, Dwarf Kidney Beans, and Cauliflowers, as we had no hope of watering afterwards, we soaked the drills well before sowing, patted the seeds into the damp soil, and covered with the dry soil. All our previous sowings thus treated turned out well, and as yet the plants have stood well. This, as already stated, is a very different affair from mere surface watering. The latter cakes the surface, and prevents the moisture rising; the former leaves the surface dry and open, and in such weather lessens evaporation. At any rate, all sowings so treated look as if they liked it, and are almost independent of the water-pail. The only crop that seemed to suffer was some rows of Broad Beans in bloom, and to these we gave a fair allowance of house sewage, and then covered up the moist with dry soil, and now they seem to set their blooms well, which in the dryness they refused to do.

Fortunately, as the season is so dry, we have depended chiefly on sown Lettuces, which, treated as above, are much more independent of the water-pail than transplanted ones. Had we plenty of ground we would never transplant, as in all seasons, and especially in dry ones, the plants not lifted, from rooting more deeply, do best. It is necessary, however, in such a case to sow thinly, and to thin out in good time. Parsnips, Carrots, Beet, and Onions have been more or less thoroughly thinned, as they would have been injured if left longer. The thinning would have been more easily done if the ground had been a little moister. Our last-sown Carrots are just up, and a third sowing of Horn Carrots now will give a good supply of young Carrots in the autumn.

*Celery*.—This we would have planted but for the weather. We are keeping it rather close and shaded to save watering. When close together a painful of water will do as much good as a barrelful in the trenches, and such matters must have thought, unless a determination is arrived at to cart water three or four miles. Celery is a ditch plant, and leaving it to become dried up is the way to make every plant start into flower.

*Potatoes*.—These, when planted about 8 inches deep, in general need no earthing-up. Ours were scarcely so deep, and we deferred drawing a little earth to them, hoping for rain first. As that did not come, and as the plants began to show signs of suffering, we drew a little earth to them, and the growth since has been rather more rapid than we like, but very healthy. We attribute the sudden change to the greater coolness thus given to the roots, and we also think that more of the vapour that is raised from beneath was thus arrested near the tubers. At any rate the earthing-up has removed every trace of suffering, and the tubers are swelling more rapidly. On the whole we are no great advocates for earthing-up, and it never should be done so as to disturb or hurt the roots, as we have known whole fields of Potatoes greatly injured by running a plough or scarifier between the rows too late; but in all cases of close cropping, where it is necessary to plant vegetables between the rows of Potatoes, the slight trench between the rows will be useful for the purpose.

We shaded early Turnips with laurel boughs.

#### FRUIT GARDEN.

Our Raspberry canes suffered a little last winter, but not so much as those of many did, and now if the plants are shorter than usual they have plenty of young fruit. To do them justice and have them fine, the shoots ought to have a good soaking of manure water. The Raspberry is a most useful fruit, and a little attention is never thrown away. The present is a good time in thriving plantations to go over them, and cut out the weak young shoots not likely to be wanted, as that will give more strength, and sunlight, and air to the canes left for next year's bearing. Those who have not yet tried would be surprised how much more prolific a cane would be that had a tolerably full exposure in the previous year than one crowded up with a lot of competitors all the summer, the most of which would be cut away at the winter pruning.

*Strawberries*.—We had made arrangements, as we thought, to keep up a supply until about the 16th inst., but we fear now that we shall not gather freely out of doors until later. We lost one row on which we depended, partly from its being cut down by grass mice. It was vexing to find a shelf and floor strewn, scarcely a fruit ripe, and hardly one bitten, showing that the whole had been done for sport. These grass mice are our worst enemies. We have had a frame of Cauliflower plants in spring cut over in a night, and yet scarcely a bit seemed to have been consumed. Our future supply will chiefly come from plants in the orchard house—those in pits and

frames, which were lately taken up as previously detailed; and to make sure that there may be no interval before there shall be a plentiful supply out of doors, we will cover a piece, on the 13th, on a south bank, with some old sashes. Where we have been able to water two or three times with sewage there is an abundant crop, and though the surface soil soon becomes dry, independently of the dry litter, the berries swell well, though much more slowly than if they had a moister atmosphere. If we had had the water, in addition to making the roots comfortably moist we would have syringed or engine the tops towards evening, so as to give moisture to the leaves. We scarcely ever recollect of the air being drier than it has been of late.

We shall have to net or otherwise keep birds from Strawberries long before they are ripe, as the birds have commenced upon them when as hard as marbles. But for birds selecting the best fruit we could let them have a share, as it is pitiable to see blackbirds and thrushes rapping and beating so long on dry hard ground, vainly expecting thus to tempt worms, &c., to come out to see what is the matter. Still, it is astonishing what quantities of soft food some birds will collect, even in the driest weather. Of late, except when we had symptoms of the rain that did not come, we have scarcely seen a slug or a snail, and have had scarcely any trouble to arrest their depredations. Early in the morning we have seen a pair of starlings catering for their young, and the quantity of molluscs, worms, and large insects that they carried in their bills must have been procured with great searching. A pair of robins that built close to the window were equally industrious, and we have no doubt the same pair have made themselves very domesticated for years. The little robins in these dry mornings would come with their beaks full every ten or fifteen minutes. The little tom-tit, mischievous in early spring, has so assiduously searched for insects on Peach and other trees, that he has scarcely allowed a single fly to escape him. We could partly forgive the little fellow for scooping out so many of our fruit buds in spring when we can see him so busy now in looking for insects.

*Cherries*.—These we have been obliged to net on the wall, though hardly beginning to colour, as the birds pull them down for something moist, though hardly able to nibble them. At the foot of one small tree we counted forty fruit, most of them punctured but none eaten.

*Apricots*, though well thinned, have thrown off a few fruit. We watered the trees a little some time ago, and would like to give a good soaking, not minding sewage if not over-strong, as a considerable part of the strength would be absorbed before reaching the roots. We have no doubt that the fruit dropping prematurely and the branches and limbs of the Apricots dying off, are greatly owing to dryness at the roots. In a season like this we should like to give Apricot trees, and Peach trees too, a good watering before the fruit stoned. The want, as in our case, of being able to give moisture from the surface, encourages deep rooting, and that is too frequently accompanied with ill-ripened wood, which may show, but refuses to set, its bloom. We could have little ill-ripened wood last season, however, as the trouble of thinning stone fruit is something out of the way. Even Cherries have set much more thickly than usual, and if left to themselves it will be well if in their case, and in that of Plums, a good many drop before they take the second swelling.

In orchard houses we are now meeting with an extra difficulty—until we have rain we shall have no water that we can use with a syringe or engine with propriety. We can merely damp the floors with dirty water, and the pots have had to be treated with sewage, though sometimes it was rather strong. To save watering the pots were all mulched, even the outside of them, and having nothing at hand to please us, we purchased a lot of the horse droppings, &c., collected on the highways. These, thrown into a heap and covered with litter, heated rather violently, which heating we encouraged, as we did not wish to be troubled with the growth of weeds. It is astonishing how such material and half-rotten leaves, as mulching, keep in moisture. A layer of either would prevent the soil beneath them from becoming dry, so very different is their action from that of a top-dressing of lighter litter through which the air passes freely. Nevertheless, when thus using such material for mulching for pots, we must not depend on the mulching itself being moist, but must examine the soil beneath it, for though that soil is defended from direct radiation and evaporation, there will be no end of moisture escaping from it in sunny days through a free evaporation from the foliage. Any sort of water will be rich enough after passing through such mulching. The only note of care we urge on beginners is, not to refrain from using the mulching, but to be sure frequently

to examine the state of the soil beneath it, so that the trees may not suffer from being watered so much more seldom.

In other fruit houses, except where the fruit was ripening, too much sun heat had chiefly to be neutralised with less or no fire heat, and keeping the pathways, stages, &c., rather damp, so that from them, instead of drying, the trees might have the moisture they required in the atmosphere. Fig trees, Peach trees, and, perhaps, more especially Vines, are very apt to become too dry when planted out inside glass houses, and thus rendered wholly dependant on the moisture artificially given. When the drainage is so effective as to prevent stagnant moisture, there is much more danger of underwatering than of overwatering. We would urge on beginners to make sure that the watering they do give is effective enough to reach the bottom of the roots. We have no objection—quite the reverse—in summer, until the fruit is ripening, to a continuous damp surface; but do not be satisfied with that, as even then the roots may be very dry, and therefore unable to meet the demands upon them. Do not be afraid with fork, or stick, or fingers, frequently to examine the state of the soil beneath, even if in doing so you should touch a root or two.

Some time ago we were asked what could be the matter with Vines which, obtained as good plants, refused to grow in the second summer after planting. The house was good, the paths moistened, the plants on shelves flourishing, the soil of the Vine border seemingly moist, and still the Vines did not flourish. In taking out our pocket-knife and digging down into the border the mystery was soon explained. The roots at 4 inches from the surface might as well have been in the desert of Sahara. With all the advantages of planting inside, and they are many and indubitable, there is this slight drawback—the soil, receiving no moisture from the heavens, must be artificially watered. When the roots are all outside we can easily conceive that, by mulching, artificial waterings may be almost unnecessary.

We have not yet removed the covering from our Vine borders outside, but on examining and finding the soil beneath a little dry, we made openings and gave some water, so that it might spread. This watering, however, was of little consequence under the circumstances in comparison with watering inside borders. The want of watering sufficiently, we believe, is the chief reason why some dislike to plant and grow Vines inside. There are many easy modes for determining whether the soil is moist enough, if we are not satisfied with surface appearances. In the viney referred to above, nothing, as respects the surface, could have looked more correct, and but for our digging down and showing the dryness of the soil beneath, we believe the proprietor would have come to the conclusion that the want of free growth was owing to planting the Vines inside.

#### ORNAMENTAL DEPARTMENT.

In some places the lawn is becoming brownish. It is worst where kept closely cropped, and where immense numbers of the seeds from large Elms have covered it repeatedly as with a carpet. Is there anything in these light gossamer-like seeds to arrest or prevent the free growth of grass? Our first impression was that they would act as a mulching, more so even than the grass cut by the new American machine. However, it is not so; that part covered with Elm seeds, and which has been frequently swept, is the barest and brownest part of our lawn.

Want of water has prevented us finishing our bedding-out, but we are well advanced. We are satisfied with what has been done, notwithstanding the scorching weather, so we think we are justified in drawing attention to the modes of working previously referred to—namely, to take advantage of the moisture in the soil, rather than be altogether dependant on what can be given from the surface. Of course we do not wish our hints to apply to those who can flood their grounds at pleasure, but to those who can give water in very limited quantity. Besides, for the consolation of those who, like ourselves, can give but little water, we have frequently noticed that plants fairly established, and then as respects water left very much to themselves, were in display not so far, if at all, behind those that were watered with hose or pot nearly every day. With all this heat and little or no watering, we have, so far as we can see, lost one *Calceolaria* from dryness, and we question if that would have gone if we could have mulched it so as to keep moisture more about the roots.

In endeavouring to finish planting flower beds, our potting of many things has fallen behind, also fresh arranging corridors, &c., but these matters will be overtaken in good time.

We often think how happy must have been our predecessors

who had not to trouble themselves with many thousands of plants to be raised and forwarded every year for the frost to take them. Now, there is scarcely a breathing time in the twelvemonth. We may here add, in behalf of gardeners and their employers, that it is the best plan in every way for the gardener and his men to be kept to the garden. Just now there are sad conflicts going on between the claims of wall trees, houses for fruit, houses for flowers, and bedding plants; and the conflict is intensified when the gardener is not only met with rough obstructive points at every corner, but when now, of all seasons of the year, whenever anything extra is wanted about the mansion the help must come from the often inadequate labour-power of the garden. We know well, that often as an employer's question the seeming saving of an extra man's pay involves the loss of that of several; and, as a gardener's question, we know that nothing so effectually knocks everything like enthusiasm out of a man as taking away his assistants just when most needed. A good move will be made when the garden in everything is looked upon as an independent establishment.—R. F.

#### METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending June 14th.

THERMOMETER.										
DATE.	BAROMETER.		Air.		Earth.		Wind.	Rain.		
	Max.	Min.	Max.	Min.	1 ft.	2 ft.				
Wed... 8	30.054	29.908	79	43	60	56	N.	.00		
Thurs... 9	29.737	29.632	75	36	60	56	N.	.00		
Fri... 10	29.678	29.618	68	45	61	55	N.W.	.00		
Sat... 11	29.928	29.745	72	60	69	55	N.W.	.01		
Sun... 12	30.118	30.031	75	52	60	55	W.	.00		
Mon... 13	30.114	30.021	83	41	61	56	S.W.	.00		
Tues... 14	30.054	29.958	82	49	62	57	W.	.00		
Mean..	29.964	29.869	76.29	44.71	61.57	55.86	..	0.00		

8.—Fine, cold wind; very fine; cloudy but fine.

9.—Densely overcast; cloudy but fine; clear at night.

10.—Fine, cloudy; very fine; clear and fine.

11.—Cloudy, strong wind; very fine; clear and fine.

12.—Fine, overcast; cloudy; overcast.

13.—Very fine; exceedingly fine and hot; clear and fine.

14.—Very fine; exceedingly fine; clear and fine.

#### TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

POLYANTHUSES (M. A. T. C. D.).—We know of few named varieties except Webb's Giant. They are usually merely described as scarlet, purple, &c. Write to Mr. Ware, Hale Farm Nursery, Tottenham. He cultivates them. If you enclose five postage stamps with your address, ordering "Florist's Flowers," the book will be sent to you post free from our office. It gives full details relative to Polyanthuses.

SALT FOR ASPARAGUS (E. R. P.).—Salt is very beneficial to Asparagus, but we cannot say that it is essential, for we know very fine Asparagus grown without its application. The growth, however, is improved by a dressing of salt, and we advise a dressing to be given about the middle of March and at the beginning of May. 1 lb. per square yard is a sufficient quantity. Of the value of sea water for Asparagus we have no experience, but should not think it would be otherwise than beneficial. It would do most good from now to the end of August, a good soaking being given every week or ten days, especially in dry weather. Asparagus is a native of the seashore.

HERBACEOUS CALCÆOLARIAS AFTER FLOWERING (Edith).—Throw them away; they never grow satisfactorily the second year. Your best plan will be to get a packet of seed of a good strain, and sow it from now to the second week in July, sowing in a seed-pot, and setting it in a shady place out of doors, covering with a hand-lid. By sowing you will have plants that will flower, and grow more strongly, and be more healthy, than old plants, which only disappoint.

CERATOCHYS PROPAGATION (M. G.).—The sprig you enclosed is, we think, *Ceratochys popillifera*, but it was smashed by the post-office punches. It is propagated by cuttings. The firm side shoots are best, they being taken off when ripe—i.e., the wood firm, in August, and inserted round the sides of a pot well drained, and filled to within an inch of the rim with a compost of two parts peat and one part silver sand, filling to the rim with silver sand. The pot may then be placed in one of a larger size, and so that the rims of both may be level, filling in the interstices with crocks, and surfacing with silver sand. Cover with a bell-glass resting on the sand between the pots, and stand in a cold pit or frame shaded from bright sun. It will suffice if the sand be kept just moist, care being taken not to over-water, and due attention given to keep from damping-off. In a month they may have the glass removed or raised, withdrawing it by degrees. They will be rooted in about six weeks.

APRIS ON STANDARD ROSES (Idem).—There is nothing better for destroying the green aphid on the doors than tobacco powder, which may be applied by a distributor. You will see it advertised in the Journal, and it may be had of the principal London and provincial nurserymen. Dusting with sand will also answer. For watering Roses and Pelargoniums we advise 1 oz. of guano to a gallon of water, to be given at every alternate watering, or once or twice a week in dry weather.



*phus grandiflorus.* (H. D., Royston).—1, *Spiraea levisata.* (W. Godbold).—*Claytonia gypsophilioides.* (W. Hodgson, Aspatra).—1, *Saxifraga aizoides*; 2, *Saxifraga stellaris*; 3, *Lysimachia vulgaris*; 4, *Epilobium palustre*; 5, *Specimen* not sufficient for identification. (Mrs. H. C. C. J.).—3, *Prunus Padus*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### FOUR HOURS AT THE TAUNTON SHOW.

I HAVE sometimes wondered whether puffing advertisements paid the puffers, seeing they assume that there must be so much credulity, stupidity, and gullibility in their readers, and yet their being continued is evidence that they must pay. Then, would people really believe in quack pills without the puffing? or in "the best blacking in the world" if it were simply very good and unpuffed? I fear not. "Have you got rid of your Wild Duck eggs, of which you had hundreds?" said I to an acquaintance. "Oh, yes, and made a little fortune by them; but, then, I knew how to advertise. I put in the ——— 'WILD DUCKS! WILD DUCKS!! WILD DUCKS!!!' Your simple, plain advertisement does not do; you must go in for it strong." Now, I have always felt fireproof against puffs. There are the puffing wine merchants, who send their circulars to clergymen every month; they have no effect on me. But puffing against puffs, either word-puffs or pastry-puffs, there was one puffing advertisement which riveted my attention and caught my fancy. I had a long journey home, the weather was inclement, and the passengers few. I had read through my newspaper, got up Bradshaw as if for examination, got tired of my book, fell to yawning, and got tired of that, tried to look out of the window, but "wind, steam, and rain" forbade; then thought of Turner's wonderful picture with that title, and got tired of thinking even of that. Well, there was nothing left to do but to stare at the advertisements pasted on the opposite side of the carriage—at "Do you bruise your oats?" or "What! South African." The latter an explanation of a picture of three men tasting wine in a cellar. These advertisements were soon exhausted; I had no oats to bruise, and I knew that Mr. Gladstone, then Chancellor of the Exchequer, had said, "South Africa, wise, innocent of South Africa, but cognisant of the Isle of Dogs." But one advertisement I kept, like a child, the tit-bit for last pleased me, and I read it, and thought of it, and it excited my curiosity, which I was ashamed to find that such an advertisement could. It was an auctioneer's advertisement, and surely the mantle of George Robins had fallen upon that man. It ran thus:—"House to let in the far-famed Vale of Taunton, one mile from the town of Taunton, in which are the best churches, the best chapels, and the best ———, best ———, best ———," and so it went on enumerating everything that a town could contain, "best doctors, lawyers, &c., &c., &c., in the West of England." Now, that was an advertisement, and it made me have an abiding wish to see the far-famed Vale of Taunton and the town of Taunton.

So now this Whit-Monday, Johnny Raw's day of rejoicing, I am off to Taunton to meet an old friend, the Bath and West of England Show. I sailed at Wells; was starved and thankful to give 3d. for a penny bun (a bad one) at Clifton; ate coarse beef and no salad at Salisbury; I was to have had it a visitor in this part, but Chippenham folks were not sufficiently awake to the advantages of having it as a guest; and now I am to meet my old friend in the far-famed Vale of Taunton, and the town where is the best of everything.

It is pleasant to meet the old Bath and West of England. There will be the old far-extending boarding; the long lines of machinery in motion, making this hot day feel hotter; the long tents with all sorts of machinery; the fat pigs; the beautiful cattle and horses, with their guardians dozing on trusses of hay; there will be the pressing-man, who wants you to buy new-fashioned churns, mangles, butter stamps, &c.; there will be pretty water-colour drawings, and some fair oil paintings, and choice antique works of art, and abundance of lovely Honiton lace, and gorgeous flowers, and charming music, and last, but not by any means, to my fancy, least of all, the long poultry tent, with its row of many little flags shimmering in the air. There is one peculiarity in this poultry Show—it is held in leafy June; it is the great summer Show, and though not as large as many, it is very attractive, and does the poultry world great good, for so many people being brought together by the various attractions, very many walk through the poultry tent and admire, and some become fanciers either of fowls or

Pigeons. Other shows are often refuges from cold and wet, but our old friend the Bath and West of England is a tent show, with the summer air blowing in at either end, and the canvas flapping pleasantly about one's ears. It forms part of a great holiday scene, and doubly so on Whit-Monday. Such a Whit-Monday, too, the perfection of a summer's day. The best bit of railway scenery of the whole long pull from Chippenham to Taunton lies between Trowbridge and Bath, that lovely vale, where the line hugs the Avon all the way, and perfect hills and woods rise around by Bradford, and at Freshford and Limpley-Stoke, and Warley. Five hours of travelling, and I am at Taunton station, where yelling men strive hard and try hard to get one into their especial vehicle. Selecting an open one, I am soon seated for a drive through Taunton. But let us imagine a pause here, and have a little historical gossip about Taunton.

By the Saxons it was Tanteen, pronounced so still by the inhabitants, showing how a pronunciation will linger though the spelling may change; subsequently it was Tawnton and Thorneton, being on the river Thone or Tone. It is a place of great antiquity, Roman coins have often been found there. Its castle was the residence of Ina, King of the West Saxons, about A.D. 700. The place figured again in history in Henry VII.'s reign, when Perkin Warbeck seized the castle and town. It figured again during the great rebellion, then in the Duke of Monmouth's time, who was defeated at Sedgemoor, not very far from the town, and, worst of all, it was the scene of brutal Judge Jeffries's bloody assize. So there is much historical interest attached to the town.

But to return. Here I am starting from the station; the streets, clean and wide, are in perfect holiday trim; trees, rootless of course, are for the nonce—fair chiefly—planted in rows on either side; and as to flags, Taunton people must be manufacturers of them; bright clean houses, here and there pretty gardens, of which I get peeps through open gates, and the silver balls of Guelder roses amid other shrubs, copper beeches, laburnums, &c. top their branches over walls and will be seen. I meet the Foresters in all their greenery, and a grand *tableau vivant* with Robin Hood, arrow and all, with a bride by his side. Then comes a regular West-of-England procession, a benefit club of Shepherds, two and two, and carrying a brass crook, with which crooks they seem to threaten one, or, perhaps, they only threaten the ladies with false ebignons, for, indeed, they look determined to crook off something or other. The scene is charming; so clean a town one seldom sees.

A mile's drive and I enter the Show. Eighteen years since the Bath and West of England began at Taunton. It was a small Show then, and the day terribly wet; it has had seventeen years of gipsy-like wandering life, and now returns for the year to its first quarters. The Show seems larger than ever.

But to the poultry tent, which was large and roomy, and had every comfort for the birds, except that the meal seemed very bad; this an inadvertence, doubtless, but had food should not be given to valuable fowls after a long journey.

Class II. *Spanish*, eleven pens, but three unfortunately empty. Class II. *Dorkings*, Coloured. Here Mr. John Martin, formerly with Lady Holmeate, of London, was far ahead with his splendid pen, the cock rose combed, of the old Linton sort. *Dorkings*, White, were not great. *Cochins*, Buff, Miss Julia Milward first by a long way, though the hen of Mr. Cattell's, the second-price pen, was a good bird. The hens of this class were deficient in leg-feathering. Of Brown and Partridge there were only three pens. White *Cochins*.—In the first-price pen the hen was small; in the second-price pen the hen was a nice bird. The Dark *Brahmas* were not too good, not such birds as Mr. Martin used to show in days of yore. The Light *Brahmas* cannot be praised much; the hens were weedy, the cocks scraggy, the legs not sufficiently feathered. Next, the *Games*. I must notice that I think dark legs in Piles are hardly the thing. The Silver-pencilled *Hamburghs* were a good class; in the first-price pen, the hen very good. The Golden-splashed were also nice. The cock in the first-price pen had just the comb a *Hamburgh* ought to have. The Silver-splashed were a wonderful class for so far south. The *French* fowls were numerous. In the "Any other variety," an excellent pen of Black *Hamburghs*, belonging to the Duke of Sutherland, took first. Mr. Glyn second with Black *Minorcas*; and third to those quaint-looking fowls, *Cuckoo Cochins*, belonging to Mr. Godfrey.

Among the *Ducks* of any other variety were several pens of the pretty *Carolina*, just the birds fit for a small piece of water. Mr. Fowler was first, and Messrs. Ashton second, with a beautiful pair of *Gargany* Teal; Mrs. Watts third, with *Carolinians*.

Sebright *Bantams*, five pens, and all either had prizes or commendations. *Bantams*, White or Black, the latter good, especially Mr. Cambridge's first-price hen, which is a beautiful little bird. In regard to the Game *Bantams*, there was not a first-class cock in the Show. The wings, which ought to go up high, would and did come

down like those of other Bantams. Those that did this least were the prize pens. On the whole I may say, that considering the time of year the poultry show was very good.

Next came the *Pigeons*. Carriers (cocks any colour)—fortunately for the other exhibitors, Mr. Ord's pens were empty. Among Carrier hens Mr. Ord's pens were again empty. The "Any other variety" class was a large one. Toys were of many varieties. Mr. Bulpin first. Mr. Loder, who exhibited three pens of Frillbacks, was second, and Messrs. Baily, of Mount Street, third. This was a very pretty class. Indeed, the poultry and Pigeons, amounting in all to 362 pens, formed a very good show.

One thing I must not fail to notice. The refreshments were excellent. Mr. Dickens did not write "Mogby Junction" in vain.

Just a peep, for time pressed, at the beautiful flowers and the paintings, and a stroll back through the town to the station, yet I must notice the stand of Messrs. Sutton.

Messrs. Sutton's stand near the poultry department and horse ring was one of the most interesting objects in the show-yard, being, indeed, an agricultural museum. I especially noticed a most interesting collection of grasses and grass seeds, in their dried and growing state, as taken from Messrs. Sutton's experimental farm, and which presented a valuable opportunity of obtaining useful information as to the sorts best suited to the various soils of the country. There was also a collection of several hundred kinds of seeds in glass cases, distinctly labelled, as well as some fine specimens of agricultural roots. Messrs. Sutton were among the first seedsmen to send their collection of seeds and plants to the Bath and West of England Society, and their stand is visited by thousands every year during the exhibition.

Tannton is, indeed, a pretty place, situated in a beautiful vale, and the holiday garb it was in, and the weather, showed all to advantage. I saw a most ornate and beautiful church tower, and one less ornate, and a mouldering tower being restored. The ornate tower is a fac-simile of its predecessor. This is the right way to restore a church. The advertisement was not altogether a puff, as far as I could judge. I had no occasion to try the doctors or lawyers, but I can imagine them to be like their town, very excellent.—WILTSHIRE RECTOR.

In Carrier cocks and hens, Blacks were first and second, the winning birds being excellent specimens. The Posters were good, also the Almonds: Jackbines coarse, Fantails good, as also were the first prize pair of Owls, but I consider the highly commended pen of Mr. P. H. Jones should have taken second. In Trumpeters the worst pair was first. Mr. Fulton most certainly should have had that place. Barbs were a good class: in the opinion of several competent judges, as well as myself, the prizes should have been reversed. The winning Turbitts were anything but good, and in bad condition: the unnoticed pen of Mr. Bulpin should have taken that position. Nuns were good: the winning Dragons coarse. In Archangels there were some good birds, the first prize where they should be; but there were three better pairs than the second. In Any other variety Black Macpines were first, Frillbacks second; but the third prize birds were, I think, the worst pair I ever saw in a show, and caused some merriment to the fanciers present.—A VISITOR.

difference between the two positions; but after careful trial I can state positively that eggs will keep good for hatching much longer and better when placed on the large end.

It is only just to say, that in his well-known pamphlet Mr. Geyelin advocates this position for eggs intended to hatch; but so many of his other recommendations were utterly opposed to all practical knowledge of the subject, that I never paid much attention to this one; and the first occasion of my devoting any serious attention to the subject, was the receipt of an interesting letter from a lady at Wickham Market, just two years ago, giving her reasons for the position now recommended. She said, "Keeping eggs on the small end appears to me to cause the air-bubble to spread, detaching it from the shell, or rather from its membrane lining; and after being so kept for a fortnight the air-bubble will be found to be much spread, and the egg to have lost much of its vitality, though still very good for eating." She then described her success with keeping the eggs in the contrary position, saying, "Owing to this method of storing, such a thing as a stale egg has never been known in my house; and as to my success in hatching, for several seasons when I was able to attend to my poultry myself, of many broods set every egg produced a chicken."

From the time that has elapsed it can be seen that I have been by no means hasty in adopting this view; but after considerable and patient testing of both methods throughout two seasons, I can now say without hesitation that there really is a marked difference between the vitality of eggs kept more than a few days, according to the position in which they are placed. It will be found, as this intelligent lady states, that the air-bubble in one case is much more spread than in the other. This can be tested at once, but of course of itself proves nothing. The great point is—and it is in this way the matter is especially interesting to all fanciers—that eggs are perfectly good for hatching at a month old when stored with the large end downward; and thus the eggs of valuable birds may be kept till a hen is ready for them, or eggs may be sent from distances which under the old plan would give little hope of success.

As a proof and final illustration of what I mean, I enclose you a letter I received a week or two since from a gentleman in the State of Ohio, U.S., to whom I shipped thirty eggs early in March. He writes, "The eggs you sent me came to hand March 30th, twenty-two days on the way. They had been submitted to rather rough treatment, but every egg was sound and unbroken. I have now eighteen chickens as lively as crickets, and am very much pleased." "We have seen the letter.—E.S.] These eggs were packed in a deal box 15 inches deep, in three layers of ten each, all wrapped in hay as above described. As I had not many hens laying at the time, many of the eggs must have been eight or ten days old when sent, and fully a month old when set; and I think, therefore, the simple fact that they hatched in the proportion of six to every ten will be sufficient warrant for my now recommending to other fanciers with full confidence the adoption of this position for packing and storing.—L. WRIGHT.

#### ANNALS OF MY POULTRY-YARD.—No. 4.

I LAST gave you a brief description of my common little housing, so far as the quality and capacity went: the fittings of the interior were of a no less ordinary kind. Three perches running the whole length, and parallel with the sloping roof, occupied considerable space in the small chamber. Eleven laying-boxes in a row along the back wall nearly filled the remaining space. In the first instance I made these a foot square and a foot high; but I soon found my Dorkings and Cochins were unable to use them comfortably, so enlarged them to 15 inches in height and in depth, leaving them a foot wide as before. This increased room was quite ample.

In addition to these little premises, I began my fourth year of poultry-keeping with very large, commodious, airy buildings attached to an old homestead, where there was sufficient space for every kind of poultry. The existing tenants of these spacious old buildings passed into my care also; and forthwith I began to manage my previous and my present premises under one system.

The larger part of my increased stock consisted of Silver-Grey Dorkings, bred expressly for the table, which with my few Hamburgs and Cochins made a total stock of sixty-four head. A very massive octagonal Pigeon-house—"cote," I cannot call it—completely cased with their tiny boxes, to which one had easy access by means of a revolving ladder, contained sixty of the most pure-bred Blue Rocks. It is admitted that

#### PACKING EGGS FOR TRAVELLING—THE LARGE END DOWNWARDS.

IN a former number of this Journal I gave what I then thought the best mode of packing eggs for rail. Since then, however, chiefly at the strong recommendation of Mr. Teebay, I have altogether discarded bran for hay, as described by Mr. Glessall a week or two ago, and believe this material, if the hay be nice and soft, to be about the best that can be used.

Twelve eggs require a round basket or hamper about 12 inches across, and not less than 6 or 7 inches deep. A good layer of hay, not rammed down, but left springy, should be put in the bottom, and some hay all round the inside; then the eggs should be nicely bedded in one layer only. Each egg should be wrapped singly and loosely in a piece of paper a quarter the size of a newspaper page, in such a manner as to leave the ends square, not the shape of the egg. Then a good wisp of hay is wrapped round each, and the eggs are put in just tightly enough to prevent them shaking about, and no more, as success depends on the elasticity being preserved. Another layer of hay at the top being put on, the cover should be tied down, which is easily done with a packing needle.

But the immediate object of the present paper is to speak of the advantages of both storing and packing eggs with the large end downwards, contrary to the usual plan. When fresh eggs are sent as above described, I have not found any appreciable





The point of the punching-bar is branched into four short sharp prongs, so that it cannot slip to one side of the pit; and a plate *c* prevents the fruit from rising with the punching-bar.

Thus the pits may be removed almost as fast as a child can turn the crank, and the operation is so rapid that the juice does not escape, and the fruit retains its natural shape and appearance. This invention is manufactured by Geor. Stewart, and Brother, Galesburg, Illinois, U.S.—(*English Mechanic*.)

**AN EARLY SUPER.**—It may interest some of your bee-keeping readers to know that I have this day (June 14th) taken a glass super from one of my hives. The comb and honey weigh 10 lbs., including the glass, or about 8 lbs. without it. It is stated in "Dee-keeping" that August is the usual time for removing glass supers. The super was put on the hive about May 15th.—*MARY ALLEN, St. Briavel's Vicarage, near Coleford.*

**A SWARM OF BEES IN A CHURCH.**—A swarm of bees on Thursday, the 2nd inst., took possession of the communion table in the church at Williton, near Taunton, Somerset, where they remained until the following Saturday evening, when they were taken by Mr. M. Langdon. Many of them died in the interim.—(*Exeter Gazette*.)

### OUR LETTER BOX.

**EMPLOYMENT (C. Drake).**—We cannot answer such a question, nor can we tell where you can obtain the *Bananas* you feel for.

**BIRMINGHAM AND MANCHESTER SHOWS (Woodville).**—As soon as we know the dates fixed for these shows we shall publish them.

**HENS FOR EGG-PRODUCING (T. G.).**—Your informant's statement was quite correct. Hens lay eggs and become broody though no cock accompanies them.

**HEN WITH YOUNG BROOD (R. H.).**—If the hen is on the earth, she should not be allowed to sit upon anything else but her chickens. Choose for her a dry spot. If she is upon the earth, the sooner you move her the better. Chickens, even if they grow up at all, cannot grow up healthily if they are on bricks, stone, wood, or asphaltum. Feed on chopped eggs, groats, bread crumbs, bread and milk curd, and chopped cooked meat. If there is no grass, give the hen a ripe cut large sod with plenty of earth, and put them in front of the rip within easy reach of the hen. She will tear them to pieces, to the great pleasure and well-doing of herself and brood.

**GAME CHICKENS DYING (Guns Turb).**—Your feeding is very varied, troublesome, and unprofitable. It is not for your family or best, mutton, dough, sawdust, and linen rags. Fowls do not like oats; wheat is not so good as barley; boiled rice is very bad, thirds and potatoes are little better. Give them barley meal or ground oats slacked with milk or water every morning, mutton, an evening. For intermediate feeding you may give bread and scraps or Indian corn. The swelling at the eye of the pullet may arise from accident, or from some local cause. If, as you say, it has nothing to do with roup, it will probably disappear as it came. If it is very hard let it alone; if comparatively soft, squeeze it. We expect the hens picked the comb that day. They are prone to do so, and if it eat a hole through it. If let alone they will eat it away. When the comb turns black the best remedy is camphor pills, two given immediately, each the size of an ordinary garden pea. As a rule the duck comb is the result of disorder caused by improper or excessive feeding. Castor oil or Bailey's pills are proper remedies. These should be followed where convenient by feeding on lettuce, if going to seed and full of stalk so much the better. If the duck combs continue let them have no water to drink which is not strongly impregnated with camphor.

**SCUFFY LEGS (Omega).**—Rub the legs of the Hambrogh cock with mild mercurial ointment once daily, give him a five-grain Plummer's pill every second day, and abundance of green food, especially of lettuce leaves. The man who said the legs are "rotten," talked without knowledge.

**PROMPTING MOUTLING (La Poul).**—Nothing can be done to expedite moulting. Much fecundity it does, but while it gets rid of the old feathers it is inimical to the production of new ones, and in a very dangerous process, laying the foundation of many diseases. If you are not better than the rest of us, you may derive consolation from the fact you have "only neighbour's fare." A pullet with a twisted flight will not do to exhibit. She should not be kept to breed from, as the defect is generally hereditary.

**THE SITTING HEN (Beginner).**—You have infringed one of the first rules of proper poultry-keeping. Sitting hens should be so placed that none can get to the nest to lay in it. Hens are very fond of doing so if they can. You will want to distinguish between the original eggs and those laid since. All you can therefore do, is to be satisfied with your thirteen when they come off, and if you have no hen to take the interlopers, throw them away. Sitting hens need no particular food.

**TROUBLED CHICKENS' TONGUES (S. E. F. J.).**—Discontinue the rice. Let their water be strictly impregnated with camphor. Give them night and morning some bread steeped in strong ale, and open the small swelling wherever it is seen forming.

**PRIZE TURKEYS AT TAUNTON SHOW (M. L.).**—None of the pens of poultry at the Show at Taunton were weighed, but were handled by the Judge in any case of apparent irregularity or for doing.

**FREGON'S WING DAMAGED (H. E.).**—Draw the feathers out, and perfect ones will soon grow in their places.

**FREGON'S EGGS UNPRODUCTIVE (Stephen).**—As your birds had three or four eggs in each nest they are not pairs at all, but only have been mated. Where there are but two eggs and unproductive, the cock is too old. Almost Tumblers seldom tumble, they are aviary birds; the coarse long-faced are the Tumblers properly so called.

**COLOUR OF AFRICAN OWLS (A Young Farmer).**—To get notion the best colour is pure white, next a good black. Owls should be whole-coloured, and not mixed like Turkeys. We need not remain despondent. An advertisement in our columns will bring what you wish; or notice the names of those who take prizes.

**CROWS AND ROOKS (T. W. A.).**They are quite distinct species. The Crow is *Corvus corone*, and the Rook, *Corvus frugilegus*.

**STOCK FIVE YEARS OLD (S. A.).**—We can do no reason for meddling with the stock here in which the bees seem to be doing so well. Combs have been known to last, and the bees to prosper in them, during a much longer period than five years. You should remove the supers when filled, and allow the bees to return to their hive.

**BEES NOT WORKING IN A SUPER (Icarus).**—If you can furnish the super with some pieces of guide comb it may, perhaps, induce the bees to occupy it; but as a rule a stock that has swarmed will not fill a super the same season, and we should therefore prefer placing it on the swarm. We should not now expect a cast. We do not fancy that your bees really fought in the super; we have known such cases before, and have always found that the communication was too restricted, and that numbers of bees had died from not being able to find their way out. What you mistook for fighting was probably nothing more than the efforts of the survivors to get rid of the dead and dying.

**BEES NOT SWARMING (E. M.).**—The queen of your weak stock is, doubtless, dead, and the bees have dwindled away in consequence. Your proposed plan of adding a swarm is the true remedy, but we cannot tell why you took away all save the end combs. They would, if left, have been invaluable to the new tenants, which are probably of little or no use to you. When a hive is not contented down by the bees during the first season, it would naturally remain loose until the colony became strong and propolis plentiful.

**DROPSY IN BEES (S. B. Knowle).**—Two of the five bees which accompanied your letter were identical with those denominated by Huber "black" bees, and which, although they may occur in stocks otherwise perfectly healthy, seem invariably to present the appearance of "dropsy." The others appeared to be dropsical. It is unfortunate that your bees were not in a moveable-comb hive, for during the operation of driving, to which you were compelled to have recourse, they would inevitably gorge themselves with honey, thereby, probably, intensifying the disease and defeating the attempt to cure it. In our own case the operation which we have before described as at once effectual; and if the disease continues, and the bees are now, as we hope, in a hive with moveable combs, we should advise your carrying it out in its integrity without delay. As far as our experience goes "dropsy" is certainly not infectious, nor will even the transfer of brood-combs communicate it to other colonies.

**HIVING A SWARM IN AN OLD HIVE (E. B. A.).**—It is a very great advantage to have a swarm in a combed hive, and there is no risk whatever of the bees not taking to it.

### COVENT GARDEN MARKET.—JUNE 15.

CONTINENTAL SUPPLY continues heavy. Quotations remain the same as in our last week's report.

#### FRUIT.

	s.	d.	s.		s.	d.	s.
Apples.....	1	sieve	3	to 6	0	0	0
Apricots.....	doz.	2	0	6	0	0	0
Bananas.....	doz.	1	0	0	0	0	0
Chestnuts.....	bushel	0	0	0	0	0	0
Currants.....	sieve	0	0	0	0	0	0
Black.....	doz.	0	0	0	0	0	0
Figs.....	doz.	6	0	10	0	0	0
Filberts.....	lb.	0	0	0	0	0	0
Grapes.....	lb.	0	0	1	0	0	0
Gooseberries.....	quart	0	6	0	0	0	0
Grapes, Hot-house.....	lb.	4	0	10	0	0	0
Lemons.....	per 100	6	0	10	0	0	0
Melons.....	each	6	0	15	0	0	0
Mulberries.....	quart	0	to 0	0	0	0	0
Nectarines.....	doz.	10	0	20	0	0	0
Oranges.....	doz.	1	0	10	0	0	0
Peaches.....	doz.	15	0	80	0	0	0
Pears, kitchen.....	doz.	0	0	0	0	0	0
Pears, dessert.....	doz.	0	0	0	0	0	0
Pine Apples.....	lb.	4	0	8	0	0	0
Pines.....	1	sieve	0	0	0	0	0
Quinces.....	doz.	1	0	0	0	0	0
Raspberries.....	lb.	0	0	0	0	0	0
Strawberries.....	lb.	2	0	0	0	0	0
Walnuts.....	bushel	10	0	16	0	0	0
do.....	per 100	1	0	2	0	0	0

#### VEGETABLES.

		s.	d.	s.		s.	d.	s.		s.	d.	s.		
Artichokes.....	doz.	8	0	to 6	0	0	0	Leeks.....	bunch	0	4	to 0	0	0
Asparagus.....	per 100	1	0	0	0	0	0	Lettuce.....	doz.	0	6	1	0	0
Broad.....	bushel	0	1	0	0	0	0	Mushrooms.....	doz.	1	0	0	0	0
Broad, Red.....	doz.	0	1	0	0	0	0	Mustard & Cress.....	punnet	0	2	0	0	0
Broad, White.....	doz.	0	1	0	0	0	0	Onions.....	quart	0	8	0	0	0
Broccoli.....	bushel	1	0	1	0	0	0	Pickling.....	bushel	0	4	0	8	0
Brussels Sprouts.....	1	sieve	0	0	0	0	0	Parley.....	sieve	8	0	0	0	0
Cabbages.....	doz.	1	0	0	0	0	0	Peas, English.....	doz.	1	0	0	0	0
Carrots.....	per 100	0	0	0	0	0	0	Peas, French.....	bushel	3	0	0	0	0
Cauliflower.....	bunch	0	4	0	8	0	0	Potatoes.....	quart	1	0	2	0	0
Celery.....	doz.	1	0	0	0	0	0	Radishes.....	doz.	3	0	5	0	0
Celery, 1st.....	doz.	1	6	0	2	0	0	Raspberries.....	lb.	0	0	0	0	0
Celery, 2nd.....	doz.	0	6	0	0	0	0	Rhubarb.....	bunch	0	4	0	8	0
Cobs.....	doz.	0	1	0	0	0	0	Savoy.....	doz.	0	0	0	0	0
Cucumbers.....	each	0	2	0	0	0	0	Sea-kale.....	doz.	0	0	0	0	0
Egg.....	doz.	2	0	0	0	0	0	Shallots.....	lb.	0	6	0	8	0
Fennel.....	doz.	0	0	0	0	0	0	Spinach.....	bushel	8	0	0	0	0
Garlic.....	bunch	0	8	0	0	0	0	Tomatoes.....	doz.	8	0	0	0	0
Herbs.....	bunch	0	8	0	0	0	0	Turnips.....	bunch	0	6	1	0	0
Horseradish.....	bunch	3	0	5	0	0	0	Vegetable Marrow.....	doz.	0	0	0	0	0

### POULTRY MARKET.—JUNE 15.

Our supply is very small for the time of year, and the birds that come are many of them stunted. A very cold spring and then long drought are not favourable to the growth of poultry, if we may judge by the samples we see daily. Prices are maintained.

	s.	d.	s.	d.		s.	d.	s.
Large Fowls.....	4	6	to	5	Guinea Fowls.....	0	0	to 0
Smaller ditto.....	4	0	4	6	Pigeons.....	0	8	0
Chickens.....	2	6	3	0	Rabbits.....	1	4	1
Duckings.....	4	0	4	6	Wild ditto.....	0	9	0
Goosings.....	5	0	5	6	Hares.....	0	0	0
Turkeys.....	0	0	0	0	Partridges.....	0	0	0

## WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 23—29, 1870.	Average Temperature near London.			Rain in last 43 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.
			Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	a.			
23	TH	Royal Botanic Society's Show closes.	72.7	47.1	79.9	17	45	3	19	48	14	31	33	af 2	24	1	50	174		
24	F	MIDSUMMER DAY.	74.1	48.9	61.5	15	45	3	19	8	35	1	38	3	25	2	3	175		
25	S		73.0	49.1	61.1	20	46	3	19	8	54	1	45	4	26	2	16	176		
26	SUN	2 SUNDAY AFTER TRINITY.	74.3	49.2	61.7	20	46	3	18	8	48	2	51	5	27	2	28	177		
27	M		72.8	48.2	60.5	15	46	3	18	8	49	2	54	6	28	2	41	178		
28	TU	Coronation Day.	73.7	49.1	61.4	16	46	3	18	7	27	3	54	7	29	2	53	179		
29	W	Royal Horticultural Society's Rose Show. [Fruit, Floral, and General Meeting.	73.2	48.5	60.8	12	47	3	18	8	12	4	48	8	30	3	6	180		

From observations taken near London during the last forty-three years, the average day temperature of the week is 73.4°, and its night temperature 48.6°. The greatest heat was 93°, on the 27th, 1829; and the lowest cold 31°, on the 28th, 1844, and 30th, 1863. The greatest fall of rain was 0.80 inch.

## UNDESERVEDLY NEGLECTED PLANTS.

SOMETIMES I feel sorry when I think how easy it would be for anyone to make out a long list of old and very beautiful plants that have been cast aside for years, and almost forgotten—set aside to make room for the many new plants constantly coming into cultivation. Many of these old favourites are only to be seen as old worn-out specimens, apparently preserved merely on account of early associations.

Now, since I have had a great demand for a variety of decorative plants, I have grown some of those neglected ones—those which were favourites of mine “long, long ago,” and I find that they quite equal in beauty and effect, and are admired quite as much as, or even more than, many of the new plants now so much grown for general decoration.

I will name but three plants out of the list before me, not only because they are the most neglected of any, but because if the same care is bestowed upon these as upon many new plants they will be sure to please, and prove that they must have been cast aside more from the force of fashion than any want of merit.

The first plant is *BURCHELLIA CAPENSIS*, a hardwooded evergreen shrub from the Cape of Good Hope. Its handsome habit and free-blooming qualities render it a very elegant plant for the stove or intermediate house. Its producing an abundance of scarlet flowers so early in the year as March, makes it all the more desirable. It may be grown into specimens 6 feet high, and 3 or 4 feet in diameter: it is then one of the best and noblest of stove plants. A compost of a rather heavy rich turfy loam and peat, in equal quantities, with one-fourth of decomposed dry cow manure and plenty of silver sand, will produce a vigorous growth with dark green foliage and bright-coloured flowers.

The second plant I select is *LAGERSTROMIA INDICA*, introduced from the East Indies upwards of a hundred years ago. It used to be grown as an evergreen stove plant, but I can flower it better by treating it more as a deciduous plant, or very like the culture given to a Fuchsia. It produces its flesh-coloured flowers in panicles at the extremities of the current year's growth. It must have liberal treatment in order to form vigorous shoots and fine large flowers; it likes bottom heat when growing, and a rich turfy sandy loam to root in. Large specimens may be grown, but I recommend small or medium-sized plants as being most attractive and convenient; but, as before stated, the treatment must be liberal to produce good flowering shoots. After flowering, the plants may be gradually ripened-off, and kept in a temperature not below 55° in winter; the growing heat may range from 70° to 80°, but if when flowering the plant is kept in a cooler and drier atmosphere it will last in bloom for some weeks. This plant and the *Burchellia* are propagated from cuttings of the half-ripened wood in a gentle bottom heat. The *Lagerstromia* requires pruning very similar to a Fuchsia.

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The last of my three selected plants is *ERANTHEMUM PITCHERII*, also from the East Indies. This plant may not be so much neglected as the other two, but it ought to be more grown. It possesses more than ordinary beauty, and is, I think, the most serviceable of the three plants named; it may be grown to bloom all the winter, and the flower is blue, a colour very valuable at that time of the year. Although large plants are very showy, they cannot equal in beauty small well-flowered plants in 6 or 8-inch pots. It will root vigorously in a compost of one-half rich turfy loam, the remainder consisting of sandy peat and very old dried cow manure in equal proportions. Plants to flower at Christmas should be propagated early in spring, and grown in a stove temperature until they have perfected their flower buds; afterwards, a cooler temperature and less water will be the necessary treatment until the plants are wanted to flower, when they may be returned to the stove and kept near the glass. Old plants, if cut down after flowering, shaken out, repotted at the same time, and their growth encouraged, will flower at two or three different times in the year.

I think an effectual way to revive the interest once taken in our old plants is to select the best and most suitable, and grow small plants in groups of one dozen or more of each species or variety, so as to present an attractive mass of colour so much thought of at the present day, and I feel sure they would gain many admirers.—THOMAS RECORD, *Lillesden*.

## SOFT SOAP AS A REMEDY FOR APHIS.

It is not credible to gardeners as a body that they should have been so slow in availing themselves of so cheap a remedy, but have left it to the farmers, or rather Hop-growers, to fully prove the useful properties of soft soap. It has been used, it is true, in gardens for a very long time, but not so much for the purposes to which the Hop-grower applies it as in some minor matters; yet the gardener suffers as much as the Hop-grower from the evil for which soft soap is found to be so an effectual remedy, and, more remarkable still, its value as an insect-destroyer was published in one of the earliest volumes of the first gardening periodical issued from the press. It is upwards of forty years since some one recommended a lather made from soft soap as a remedy for red spider on Melons, and it was not till years afterwards that we ever heard of its being applied as a destroyer of another insect equally hurtful to vegetation. Tobacco in some form was supposed to be the only antidote to green fly and other enemies of its class, though now and then decoctions of Laurel leaves, Potato tops, and other poisonous leaves were used with good results, but their efficacy was never assumed to be equal to that of Tobacco, and they were only employed as substitutes for it.

Many a sigh was heaved at the expense of Tobacco, and many a wish expressed that, like glass, it could be had duty free. At length the Hop-growers took the matter up; they had suffered severely from aphid, without daring to help themselves, for although the revenue officers pre-

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sented no obstacle to the unlimited use of sulphur to counteract one of the worst enemies the Hop-growers had to contend with, the custom of the trade forbade its use, and a gentleman who some years ago had the temerity to use sulphur as a preventive to mildew, had to pay damages to the extent of several thousands of pounds. Now the use of sulphur is no longer forbidden by those to whom the Hop-grower knows he is compelled to sell his produce, and this has led to greater freedom of action; the grower recollected he had suffered as much from aphids as mildew, and a remedy for the one was as necessary as for the other, and the buyers wisely offered no opposition to the application of such things as were recommended as preventives of green fly. Great results having followed the uses of Tobacco, the Chancellor of the Exchequer was importuned into letting the grower have it duty free under certain conditions and in a certain form. Meanwhile other substances were tried, and it was thought by using part soft soap with the Tobacco the expense would be lessened. The result being satisfactory, it became apparent that very little tobacco was necessary; and soon after the scheme of the Treasury for letting the growers have tobacco duty free, in mixture with other substances, came into operation, it was found that the expensive article was not wanted, and the manufacturers of duty-free Tobacco for fumigating and other cultural purposes were left almost without customers. Of course, a series of experiments was required to bring this about, and it is possible the lingering wish to use tobacco may still induce some to prefer it to soft soap; but the Government mixture has not found much favour with Hop-growers in general. One who has many acres of Hops told me that what little tobacco he used in addition to soft soap last year, he obtained from the tobacco-nut; but, then, the proportion in which he used it with soft soap was 1 in 40, and he did not seem to set much value upon it as a help. Indeed its use is generally discontinued, and soft soap alone in a diluted state is applied to an extent that would astonish those not acquainted with the expenditure incurred in Hop cultivation. I recollect being in company with a friend from the midland counties one day last summer, in one of the highways of this neighbourhood, when we met a waggon loaded with soft soap, all consigned to one grower, for the express purpose of ridding his grounds of the aphids, and we had no difficulty in seeing the mode in which it was used. It is first boiled in a quantity of water so as to thoroughly dissolve it, afterwards more water is added to reduce it to the proper strength, the usual practice being 1 lb. of soft soap to ten gallons of water, and some have added 1 lb. of tobacco to 40 lbs. of soft soap, but in general the tobacco is omitted.

Soft soap is so cheap, and a solution of it so easily made and used, that its application to other plants besides the Hop will at once suggest itself to your readers. How often do we not see Roses suffering from aphides, and I have seen it so applied with advantage, and with the Hop-grower's engine too; for it must be observed that the manufacturers of machinery for projecting the soft-soap solution against the Hop plants have been fully employed, and important improvements have been effected, from the simple one-handed engine to those requiring two or three men. One class of engine, however, soon fell into disrepute—the hydrolipist; its powers and durability both failed it in the contest with other machines. I may add that up to the time I write, June 13th, these engines have not been in requisition this year, for the Hop plant is unusually clean. Those having fruit trees affected by green fly, or Rose beds or Verbena suffering from the same enemy, I strongly advise to use this remedy at once, and they will be surprised to find how soon the offensive smell passes off; and no stain worth mentioning is left when soft soap is applied at the strength above recommended. If an example be necessary, I may say that we applied it here to some Orange trees in a large conservatory which it is difficult to fumigate, and feel quite satisfied with the result, the disagreeable smell disappearing sooner than that from tobacco water, and no traces were left behind it, excepting such as were caused by the insect. Let all, therefore, who have plants suffering from any of the aphid family lose no time in applying it at once, and if their operations be somewhat on a large scale, I expect that amongst their other stores in future will be found "a firkin of soft soap."

Since writing the above, I have ascertained that the wholesale price of soft soap is under 2d. per lb. I also find that some growers have been using it on their Apple trees to counteract the evils arising from the maggot, while others have used sulphur with the same object. There are many other uses to which this substance may with advantage be applied,

and I find by *The Builder*, that its employment for a purpose for which it was recommended twelve or fifteen years ago—as an outer coating or wash for the walls of dwelling-houses to keep out damp—has been revived. A strong solution is recommended, followed by a wash with alum water. Should it be extensively used in the Hop gardens this season, I hope to be able to give some account of it during the summer.—J. RORSON.

## ROSES.

I VISITED my "pupils," the Rev. R. Price, rector of Child Okeford, and Mrs. Price, to-day, and was gratified by the appearance of the Roses generally. These were especially fine—Baroness de Rothschild, Vicomtesse de Vézins; Lamarque, the finest scented Rose in the world; and Madame Margottin and Adrienne Christophle, both Tea Roses, and of great excellence. The new Roses, Marquise de Castellane and Albion, planted out about ten days ago in my own garden, have passed a good degree for juveniles.

The Rose I wish to speak of specially is Felix Genero. I am cautious of recommending anything in a hurry. Last year I wished to recommend the above Rose, but determined to wait another year. I have eleven plants of it on the Manetti stock; I have no experience of it upon the Briar. It is the best Rose, good in every possible respect, that I have seen since Charles Lefebvre, Pierre Notting, and Lady Suffield came out. It is well worthy of M. Lischamps, to whom I tender my thanks. It needs no puffing; in due time it will speak for itself. It is good as to growth, health, foliage, formation, colour, disposition of petals, outline, smoothness of aspect, substance of petal—in short, I cannot see a fault in it. I have eleven plants in bloom now, and I can see no difference between one plant and another, or between one bloom and another. It is a free bloomer, and I recommend it, on the Manetti stock, to the rosarians of the whole world.

The Roses here (Okeford Fitzpaine) are now wonderful. If I have not highly recommended Marquise de Mortemart I now make the *amende*.—W. F. RADCLIFFE.

## PRUNING ORNAMENTAL TREES AND SHRUBS.

No. 2.  
EVERGREENS.

BECAUSE evergreens retain their foliage in winter, forming the best shelter, and affording the longest enjoyment, as a rule they are the most extensively planted; and, as they are looked upon as objects pleasing to the eye, it is of importance that their pruning should be attended to, in order that they may be objects of beauty and interest at all seasons. The beauty and interest of evergreen trees and shrubs may seem to be secured in a plantation of unpruned Spruce, Pine, Evergreen Oak, &c., when viewed at a distance, but even at a distance the difference between pruned and unpruned trees is very great. Unpruned groups assume a sort of wall-like aspect, very different from that fine "tufted" appearance we observe in all trees which, if viewed from a distance, form groups, but on closer inspection individually fine plants when aided by judicious pruning. Whether formed naturally or by the aid of man, fine trees are always admired, and to secure such being the rule, not the exception, we must resort to pruning, and commence it at an early stage of the plant's growth.

CONIFERS.—Pruning is necessary even for these, though but little is required; still it is of great importance to attend to it at an early stage of growth, for if deferred until the trees are of considerable size and age they are more difficult to treat; misplaced or adjoining branches cannot be cut off without creating great gaps, but if removed as shoots the vacancy caused by their removal is soon filled up.

In pruning Conifers we should always bear in mind the natural habit of the tree. All we seek by pruning is to aid Nature in producing well-formed specimens, by taking away deformities she is powerless in herself to remedy.

It is of vast importance to all planters to plant those trees most likely to form good specimens, and which have free healthy constitutions. Such are all those raised from seed, and as a rule they require the least assistance from man. With no class of trees more than Conifers it is requisite to have the plants from seed. Some of that family never form any thing better than spreading irregular plants when propagated by cuttings or grafting. The latter is a very common practice on the Continent, and now finding its way into our nurseries; indeed, many obtain these worked plants from the Continent,

and after growing them for some time send them out. For some species this mode of propagation is wholly unsuitable, and as instances may be mentioned the whole of the following genera in which I term

*Section I.*—*Abies*, except *Albertiana*, *canadensis*, *Williamsoni*, and a few others; *Arancaria*; *Cedrus* (there are many grafted plants in commerce that cannot fail to disappoint); *Cryptomeria* (the majority are from cuttings); *Larix*, *Picea*, *Pinus*, and *Wellingtonia*. All these have the side branches starting at right angles from the stem, or with a slight inclination upwards, though the branches may afterwards have a pendulous disposition, or the spray may be drooping as in the case of the Larch, yet all have branches proceeding directly from the stem outwards, and one leader. To prune trees of this section is not difficult.

The only pruning they require is, in the first place, when two leaders present themselves. Whether they are the result of injury, or naturally produced, the remedy is the same—namely, the removal of one of them. This cannot be done too early after their presence is discovered, taking away that which is the least central, and from its ill-disposition not equal to the other for forming a leader. If there are more than two leaders, then one of them is to be retained, and all the others cut away close to the place whence they proceed. In some instances, as with the *Cryptomeria*, the side branches near the summit are so disposed that they grow nearly erect with the leader. The side branches of the Scotch Fir and some of the *Pinus* also assume a sort of semi-leadership. When this is the case prompt steps must be taken to divert more of the sap into the leader by removing the side branches which grow most upright, cutting them back to where there is a fork, or another branch or shoot growing in a direction less calculated to interfere with the leader. In this way, when we want vigour in the leader, the strongest of the most upright branches are to be cut in, but in such a manner that no openings will be made, or only such as are of a temporary kind. By reducing the strong side branches we give additional vigour to the leader, and add to the height of the tree, for when the side branches assume a leader-like appearance we may be certain that the sap expended in them will reduce the vigour of the leader; instead of rising it will scarcely maintain its ground against its rivals. The head, instead of towering, will become broad and spreading, and disproportionate to the lower part, which, from the great demand on the sap by the erect upper branches, becomes annually weaker, and at length dies off. The necessity of one leader, and of throwing as much support into it as possible, will be apparent to all giving the least attention to the subject. Let the needful pruning, however, be done in time, before the side branches grow thick; then, from their having wider channels, the sap is not readily diverted from them to the leader.

In the next place the side branches are often irregularly produced, and vary much in vigour and proportions. They are then fitting subjects for pruning and training. Though it may be difficult, and indeed impracticable, to secure by pruning more side branches than the tree puts out naturally, yet by shortening those which monopolize too much of the sap we may encourage the weak, and at the same time cause the one strong branch to become two or more, and with their points directed to where we wish to have branches. In this way, if the branches do not come directly from the stem where we require them, we must, by cutting away the long extremity of the adjoining side branch, secure as much of it as we can on that side where there is none. This shortening of the side branches must be attended to early, whilst there are ramifications near the stem, and be made by a clean cut where two secondary branches or shoots diverge. If there are plenty of side branches, but irregular in length and strength, then we have not only to reduce the length, but to maintain the outward tendency, for if we cut back when there are plenty of side branches on other parts of the tree, we only cause the secondary branches on the branch cut back to grow towards the other side branches, and ultimately to cross them—a result always to be avoided. In a case of this sort we must, after shortening the branch, retain one from it at the place where it is cut back, to take the like position to the one removed. Again, we may have side branches very closely set on one part of the tree, and deficient in another; or they may be strong in one part, and weak in another. The former evil will be met by cutting out any that are not feathery, growing out long and spraylike, and leaving those which are the best clad with foliage; the other evil may be corrected by cutting clean away, where practi-

able, the strong side branches; and if that cannot be done without causing a deficiency, then the strong branches may be shortened and deprived of some of their ramifications, and by that means the sap will be diverted into the weaker shoots, and they will acquire equal vigour with those on other parts of the tree. Though there always must be different degrees of vigour in the side branches, yet it should not vary to such an extent as to produce an unevenly-balanced specimen.

Thirdly, from the side branches there arise minor branches from their upper side, that take an upward direction. These are not of unfrequent occurrence on the side branches of the Deodar Cedar, Cedar of Lebanon, Balsam of Gilead Fir, and many others of the Fir family. Their tendency being upward, the sap is drawn into them more freely than into the horizontal branches, and they become excessively vigorous, impair the strength of the principal leader, and destroy all the branches on that side of the tree. Whenever a shoot of this description appears, take it off at once close to the branch whence it proceeds.

All pruning should, if possible, be done with a knife, or if it be necessary to use a saw (which is to be avoided as much as it can be), the wound ought to be smoothed with a sharp knife. The branches or shoots must in all cases be cut off close to whence they proceed, or to a branch or fork. Conifers should be pruned late in winter, or early in spring before the sap begins to flow, or pruning may be performed at the end of summer, the growth being complete and the wood firm. Any application to the wounds is useless, for the bark grows more quickly over wood than over any sort of composition.—G. ABNEY.

## THE PEACH IN THE CRAVEN DISTRICT OF YORKSHIRE.

GARGRAVE, near the centre of Craven (rural district), is situated about 215 miles N.N.W. of London. The soil, which is rather shallow, abounds in magnesian limestone, and rests on a deep bed of gravel. Beech, Elm, Sycamore, and Ash grow to a great size; Oak does not succeed well except in some places where the soil is more tenacious. Fruit trees generally do not succeed well, except Apples, Cherry, and Plum trees. Pears can only be grown second-rate, "with all appliances and means to boot." Strawberries, however, seem to do pretty well, and some of the hardy sorts come to great perfection.

In many places in the neighbourhood the Peach seems very difficult to manage owing to the old system being carried out. I think that if something after the plan I adopt were practised, Peaches might be grown where they are too often a failure. At this place, Gargrave House, the seat of J. Conlithurst, Esq., we have a first-rate brick wall, 60 yards long and 12 feet high, facing nearly due south, and heated the whole length by four fires. When I took the management of the garden, four years ago, I found the Peach trees had been dreadfully neglected; they had been nailed with list shreds, and never unsnail, had blistered wood through the fire being too much used in the spring, and were in such a state as to render it necessary for some, at least, to be thrown away. In the autumn of 1866 I lifted the trees, took out all the nails, had the wall well pointed, carefully planted the trees which it seemed possible to restore to health, and filled up the number with fine young trained trees. A standard and then a dwarf were planted alternately. The trees the first year grew very well, but did not bear much fruit; in the second year, however, they bore for the size of the trees plenty of fruit of good quality. In the autumn of 1868 I again planted most of the trees, giving them some new soil, and last year, though scarcely anyone had many Peaches, we had a very full crop.

In the autumn of 1868 we covered half the wall with a Paxton house to prolong the season of Peaches. I had as good a crop inside as outside. This week (to-day is April 16th), I have pulled off thousands of Peaches in the house, and, outside, the trees are in full bloom. I planted nearly all the trees again last autumn, both those inside and outside, and I scarcely touch them with a knife, except in the spring just to shorten a little the long shoots of the young trees. By constantly removing the trees they are matted with fibrous roots, producing short fruitful wood, which, with plenty of summer pinching, gives abundance of spurs that ripen well when long shoots fail to do so. I only allow the roots 1 yard of border, which is quite sufficient with constant lighting.

My mode of training is the fan-shape, but not on Seymour's system of pruning. Upright training for Peaches is a great

mistake; the trees are ugly and the shoots cannot be arranged to suit the requirements of the tree. I use no shreds, but drive little cast nails in and tie the shoots to them. In autumn the ties are all cut loose; the trees that were not replanted in the previous autumn are replanted, and secured to the wall by a few ties until spring, when they are pruned and nailed back; and throughout the summer I give copious waterings with liquid manure. I thus secure plenty of large lucious Paaches, and have about one fruit to the square foot. —RICHARD JAMIESON.

### MANAGEMENT OF OUT-OF-DOOR GRAPE VINES.

I THINK I never before saw the Grape Vines on the open walls so healthy, and so free from any mildew or other diseases, as they are this summer. The dry weather, with the warm nights, appears to suit the plant, for the foliage is well developed, the growth uncommonly vigorous, and so far as I have seen there is likely to be a good crop of fruit. Every Vine is well furnished with more than medium-sized bunches for out-door Vines, which are now well in bloom.

A pity it is that those who possess these Vines should allow them to exhaust themselves, and injure the crop of fruit, by the production of a superabundance of foliage and wood. Very many of the bunches are hidden so thoroughly among the mass of wood and foliage, that they can neither have light nor air. This fosters that terrible enemy the mildew, which in most cases ruins the crop of fruit.

There is no great trouble in giving a judicious thinning of useless shoots, and stopping those branches with fruit two or three joints beyond the bunches, which will be found to materially assist the fruit towards perfection, which is a point of no small importance, seeing that the out-door Vine has a very short season in which to do its work. Attend to the above instructions, and train and neatly nail every shoot and branch to the wall, and if the crop of fruit do not pay for the trouble the appearance of the Vine itself will; for it will prove to be one of the noblest and most ornamental plants that ever adorned a house front or garden wall. —THOMAS RECORD, *Lillesden*.

### PREVENTION OF MILDEW ON ROSE TREES.

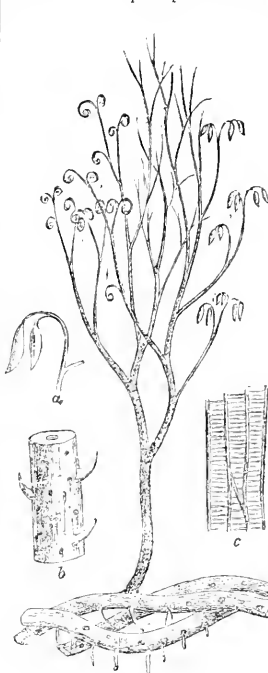
THIS season the Rose trees in my garden have been kept free from green fly by syringing them two or three times, at intervals, with a wash costing less than 2d. the gallon. I make it thus—Four 1 gallon of boiling water on 12 ozs. of African aloes and 3 ozs. of potash, and add 16 ozs. of soft soap and 10 gallons of water. This mixture is valuable as a dip; it will keep good for two or three weeks. —A. C., *Scarborough*.

### PRIMITIVE VEGETATION OF THE EARTH.

UNDER this title Mr. Dawson has communicated a very interesting narrative to *Nature*, a periodical well meriting a wide circulation. It is a subject deeply interesting to me, and has been from boyhood, the interest being then first aroused by my finding the very perfect impress of a Fern frond on the face of a piece of coal. At that time—more than forty years since—scarcely one hundred fossil plants were known, but since then Goppert, Brongniart, Lindley, Hutton, and others have made special and systematic researches, and now about two thousand are named and arranged. Of these not more than seven hundred are known as at present existing. The remainder we may conclude belonged exclusively to the "Primitive vegetation of the earth." Researches are still being ardently pursued in America, and among the results has been the discovery of the oldest plant of that country. Mr. Dawson thus describes and depicts it.

"In the sandstone cliffs of Gaspé Bay, Sir W. E. Logan recognised in 1843 the presence of great numbers of apparent roots in some of the shales and fine sandstones. These roots had evidently penetrated the beds in a living state, so that the root-beds were true fossil soils, which, after supporting vegetation, became submerged and covered with new beds of sediment. This must have occurred again and again in the process of the formation of the 4000 feet of Gaspé sandstone. The true nature of the plants of these fossil soils I had subsequently good opportunities of investigating, and the most important results, in the discovery of the plants of my genus *Ptilophyton*, are embodied in the

restoration of *P. princeps*. This remarkable plant, the oldest land plant known in America, since it



*Ptilophyton princeps*—the oldest known plant of America, restored. (a), Fruit, natural size; (b), Stem, natural size; (c), Scleriform tissue of the axis, highly magnified. In the restoration one side is represented in vernal, and the other in fruit.

numbers of slender but somewhat woody stems, forming a dense mass of vegetation 3 or 4 feet in height. The stems, when young or barren, were more or less sparsely clothed with thick, short, pointed leaves, which, from the manner in which they penetrate the stone, must have been very rigid. At their extremities the stems were divided into slender branches, and these when young were curled in a crosier-like or circinate matter. When mature they bore at the ends of small branchlets pairs of oval scales or sporocases. The rhizomes when well preserved show minute markings, apparently indicating hairs or scales, and also round areoles with central spots, like those of *Stigmaphyllon*, but not regularly arranged. These curious plants are unlike anything in the actual world. I have compared their fructification with that of the *Pilularia* or *Pillworts*, a comparison which has also occurred to Dr. Hooker. On the other hand, this fructification is borne in a totally different manner from that of *Pilularia*, and in this respect rather resembles some Ferns; and the young stems by themselves would be referred without hesitation to *Lycopodiaceae*. In short, *Ptilophyton* is a generalised plant, presenting characters not combined in the modern world, and, perhaps illustrating what seems to be a general law of creation, that in the earlier periods low forms assumed characteristics subsequently confined to higher grades of being."—G.

### ROYAL HORTICULTURAL SOCIETY'S SHOWS.

HAVING been to the last two Exhibitions of the Royal Horticultural Society at Kensington, I wish, while they are still fresh in my memory, to make a few remarks upon them. In the first place I must confess myself much disappointed with the Show on the 13th May, which was called the Heath and

**Pelargonium Show.** The Heaths were fairly well represented, and so were the Fancy and Show varieties of Pelargoniums; but I was much surprised on looking at the schedule that no prizes were given either for Golden or Silver Tricolors, variegated bedding Pelargoniums, or Bronze and Gold; nor were there any special prizes offered for new varieties, and nothing, in short, to induce raisers and growers of new varieties to exhibit them.

I thought, when at the beginning of the year it was announced special shows would be held for different varieties of plants at the most suitable seasons, that it would be a step in the right direction, and I determined I would attend at the Pelargonium Show to see what advance had been made in the different sections of this interesting and popular plant. Other country Fellows besides myself had also come up for the same purpose, and were equally with me disappointed in finding that the classes for Golden and Silver Tricolors were included in the Show of the 8th of June, and that single specimens of nine different classes of Pelargoniums are to be exhibited on August 3rd. Now if those prizes included in the schedules for June and August had been given on the day fixed for the Pelargonium Show, it would have added very much to the interest of the Exhibition. But even then I do not think the schedule would have been a very perfect one—for instance, with the extraordinary advance which has been made in a few years in the Gold and Bronze section of Pelargoniums, it seems absurd that our leading horticultural society should offer only prizes for a single specimen, and that only at an inferior meeting. I am not speaking now of the Oxford meeting, as that occupies a position by itself. There is no prize, again, offered for newly-introduced varieties, and no limits made in the size of the pots. The consequence is that, with some few exceptions, no good new varieties were exhibited, either in the Fancy or Show section, or among the Zonals, on May 18th. Nor do I expect that the prizes offered on the 3rd of August for single specimens will bring much competition, as so much is thought in general of the size of plants, that the improved varieties more recently introduced have very little chance against old-established varieties.

It may be premature to suggest alterations for another year, still I venture to throw out the hint that another year at our special shows every possible variety, of whatever plant may be the subject of the day's show, be represented in the schedule. I only speak with regard to the Pelargonium Show, but I dare say some correspondents may point out omissions in other special shows.

I cordially endorse what was said in "The Gardener" as to the fitness of the training of some of the Zonal Pelargoniums, still the fault does not rest so much in using wire trellises, as in the manner in which they were used. All plants must have either sticks or wires, and innumerable sticks, such as were to be seen in some of the large show plants, are quite as objectionable as wires. "*Arseti celare artem*." If the wires were used so as to train the plant into a more globular form, and the plants were finally tied at least from two to three weeks before the show, then the tying would not show so much, and the fitness of form would be avoided. Among Zonals, six which were exhibited by Messrs. Downie, Laird, & Laing were the only ones which had a good symmetrical shape. The Tricolors of June 8th were in far better form than the Zonals on May 18th.

I should certainly suggest that special prizes be given to new seedlings of merit, at least three plants in 6-inch pots to be shown of each variety, and that other classes be made in 8-inch pots for varieties that have been introduced into the trade for one or two seasons.

I have made my remarks on the Pelargonium Show of the 18th ult. so much longer than I anticipated, that I will only add a few words about the Show on the 8th. In the first instance the material of the Show was very good. A better collection of Orchids is seldom seen, and the classes for twenty stove and greenhouse plants in smaller pots, brought a very interesting collection of plants together. Mr. Baines's plants were again, as everywhere, all that could be desired, but it is earnestly to be hoped we may have a better place to exhibit the plants in. The corridors are too dark and narrow, the conservatory on the 8th oppressively hot, and the arcades, which are at present being built over the corridors, will be both narrow and hot. It was quite a luxury on the 8th to go into the large tent where Mr. Waterer's splendid collection of Rhododendrons was exhibited. May we not have a tent, or series of tents, constructed on the principle of those which were used at the

International Exhibition in 1862, at the lower end of the gardens, next to the National Portrait Gallery, and the ground laid out in proper walks and terraces, much in the same way as in the Rhododendron tent? It may not be so suitable for wet weather, but there would still be the arcades and conservatory to fly to as a *dernier resort*, when the weather was threatening. At present the judges are almost the only persons who have the opportunity of seeing the plants satisfactorily, and many visitors to the flower shows merely stay to listen to the bands outside.—C. P. PEACH.

### ROYAL BOTANIC SOCIETY'S SHOW.

ALTERATIONS in schedules often make great alterations in shows, and the altered schedule of 1870 made a great alteration in the Royal Botanic Society's June Show, and not for the better. That the Exhibition, opened yesterday and continued to-day, is pretty as a whole we can affirm, that it has many points of merit we can affirm, that it owes much of its effect to the skillful arrangement of the cortones and painstaking Superintendent, Mr. Thomas Don, we can also affirm, but that it is equal to the corresponding shows of former years—that we can *not* affirm. The large specimen stove and greenhouse plants which occupied so much space, as a rule, were absent, and there was nothing to compensate for their absence by the presence of more numerous, more varied smaller specimens. Still it must be admitted that flower shows of late years have travelled very much—too much—in one beaten path. What we saw at the Horticultural one week appeared at the Botanic the next, at the Crystal Palace two or three days afterwards, and those who had seen one exhibition had, to all intents and purposes, seen all. But this is not, could not be, satisfactory, for the mind of man is so expansive, that it has no limit on earth; it is ever seeking for fresh fields to conquer, until the utmost degree of progress (whatever that may be) shall be attained. It is well, therefore, that deviations should be made from the beaten track, and if they are not so successful as anticipated, we should not too much blame those who have the boldness to make them, and who will, no doubt, in the end turn the experience gained to advantage.

Large specimens of stove and greenhouse plants are almost entirely absent; but a few are contributed by Messrs. Carr, Wilkie, J. Wheeler, Williams, Tanton, and Jackson & Son; while Messrs. Carr, Cole, and Hill, gardener to R. Hambury, Esq., send fine foliaged plants, Groups arranged for effect come from Messrs. Les, Hammersmith, and Messrs. A. Henderson & Co., and a very neat group of bedding plants arranged for effect from Messrs. E. G. Henderson & Co., Mr. Parker, of Tooling, and Mr. Ware furnish pretty groups of hardy herbaceous plants. Of Cape Heaths, Messrs. Jackson, Ward, and J. Wheeler have very good examples. Fuchsias from Mr. Filce, gardener to J. Hutton, Esq., Clapham Park, and Mr. Canwell, are excellently grown. Pelargoniums from Mr. Ward are likewise fine, consisting of Lord Clyde, Mary Hoyle, Viola, King Arthur, Nestor, and Sunny Memories. In the other classes Messrs. Dobson are the only exhibitors. The Zonal Pelargoniums from Mr. Cadlin, gardener to Mrs. Lermotte, Finchley, are one of the best points in the Show. They consist of well-trained plants, averaging 4 feet in diameter, of Clipper, Leader, M. Rendall, Commander, Tintoret, and Oliver. Of Tricolor Pelargoniums, Mr. Steven, Mr. Welch, Hillingdon, Messrs. Carter & Co., and Messrs. E. G. Henderson have well-grown specimens. The best of the double-flowering kinds come from Messrs. Carter.

Orchids are but few. The best in the nurseries class are from Mr. Williams, in the amateurs' class from Mr. Ward. Mr. Williams has also a fine single specimen of *Cattleya Warneri*, and Mr. Stevens, gardener to the Duke of Sutherland, Truthum, of Dendrobium formosum, with a infusion of yellow and orange flowers.

Of Gloriosa, the best come from Messrs. Robinson and Mr. Davies, and the former also send an excellent collection not for competition.

*Spiraea palmata*, one of the most beautiful of rose-coloured flowers, from Mr. C. Noble, forms the most conspicuous of the miscellaneous groups; we hardly know how to commend it more than we have done—it is most lovely.

Paul & Son send Roses in pots; and stands of cut blooms are very numerous. Messrs. Paul & Son, Mr. Mitchell, and Mr. Fraser being the principal contributors amongst nurserymen; whilst Mr. Dolree and Mr. Hollingsworth have the best stands among amateurs. Groups of new and rare plants come from Messrs. Veitch, Mr. Bull, Mr. Williams, and Messrs. A. Henderson & Co., those from the first two being especially remarkable. Messrs. Veitch have the orange scarlet *Scutellaria mucronata* in fine bloom, their valuable new *Crotons*, *Begonia Sedeni* and *Chelodoni*, and numerous *Palms* and other plants. Mr. Bull has in a large and interesting group *Gleditsia gigas*, a singular plant, of which a detailed account was given some time back. Lastly, Mr. W. Paul, in addition to the fine stands of cut Roses, sent a beautiful group of various Zonal Pelargoniums in flower, beautifully grown, and forming one of the most effective groups in the whole Show.

FRUIT.

The exhibitions of fruit, though not numerous, are good. The best collection comes from Mr. Bannerman, gardener to Lord Bagot, and consists of two Queen Pine Apples, Foster's White Seedling and Black Hamburg Grapes, the former very fine; excellent Royal George

Peaches, Elruge Nectarines, Strawberries, Cherries, and a Cashmere Melon. Mr. Clark, gardener to Earl Cowper, Brockett Hall, is second. The best Pine Apple is a Queen of 5 lbs. 11 ozs., from Mr. Ward, gardener to T. N. Miller, Esq., Bishop Stortford; the second best a Providence of 10 lbs., from Mr. H. Bertram, gardener to R. T. Crawshaw, Esq., Cyfarthfa; and the same variety from Mr. Penford, gardener to the Earl of Radnor, Longford Castle, Wilt. The third prize went to a Queen of 4 lbs. 7 ozs., from Mr. A. Grant, Manor House, Finchley. The best Green-fleshed Melon is Colston Bassett Seedling, from Mr. Lamb; the second best, unnamed, comes from Mr. Cross, Readcombe Park, Gloucestershire; the third prize being awarded to Mr. Douglas, Loxford Hall, Ifford, for Meredith's Hybrid Cashmere. In the Scarlet-fleshed class, Mr. Weir, gardener to Mrs. Hodgson, Hampstead, is first with *Weir's Eclipse*; Mr. Douglas being second with *Scarlet Gem*. Mr. Masters, Sherburn Castle, Oxfordshire, sends three handsome fruit of a cross-bred between Meredith's Cashmere and Heckfield Hybrid, about the quality of which nothing can be said, as the prize was not to his cut.

The prize baskets of Grapes are all Black Hamburgh, and large and beautifully coloured are most of the berries. Mr. Ward is first, Mr. M. Henderson, gardener to Sir G. Beaumont, second, Mr. Bannerman third. The best three bunches of Black Grapes are Mill Hill Hamburgh from Mr. Henderson; Mr. Miller, Combe Abbey, being second with Black Hamburgh, and Mr. Bannerman third, all with excellent well-coloured bunches.

The first prize for White Grapes went to Mr. A. Reid, gardener to L. Huth, Esq., for splendid bunches and berries, as regards size, of Buckland Sweetwater. Mr. Douglas being second with finely-finished bunches of the same variety.

The best two dishes of Peaches are Bellegarde and Royal George, large and highly coloured, shown by Mr. Jack, gardener to the Duke of Cleveland, Battle Abbey. Mr. Davies, Whetstone, is second with the same kinds; and Mr. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, third with Royal George and *Violette Hative*. For Nectarines, the first prize goes to Mr. Miles, Lord Carrington's gardener at Wycombe Abbey, for excellent fruit of the Elruge; the second to Mr. Carmichael, gardener to H.R.H. the Prince of Wales, Sandringham, for *Violette Hative* and Elruge, likewise excellent. The third prize was awarded to Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall.

Of Black Cherries, a most splendid dish of Black Tartarian from Mr. Miles, is first, and in White Cherries, an even more beautiful dish of Bigarreau Napoleon, from the same skillful fruit grower, takes a similar position. In Strawberries, again, another most successful cultivator is first, both for four dishes and for two dishes—viz., Mr. Douglas, of Loxford Hall—for four dishes with Sir Harry, Mr. Radcliffe, La Constante, and Frogmore Late Pine, of which he has splendid berries, even at this dry season; for two dishes with British Queen and La Constante. Mr. Miles is second, with four dishes, and Messrs. Standish & Co., with two.

### SOME PECULIARITIES OF THE SEASON.

It is a saying that winter never passes away without leaving some trace of its existence behind it. A very severe winter damages shrubs and trees, and often kills a number, as well as does more or less injury to plants of humbler growth unless they have been covered with snow. A mild winter, instead of doing harm to existing vegetation, takes its revenge on that which is to come by rendering the ground unkind to work and unfit for the purposes of cultivation. This, no amount of labour can effectually remedy at once. We have also sometimes had winters giving great encouragement to slugs and other enemies to young vegetation, and now and then a high wind leaves its mark behind it. All these and other misfortunes we have to lament more or less, but fortunately we never have the whole all at once. A sharp frost, if it deprives us of much that is valuable, sweetens and pulverises the soil in readiness for another crop, and tillage is then easy and pleasant.

The autumn of last year was in no respect remarkable; perhaps more than the average amount of rain fell, but we had no extraordinarily high winds. Frosts were moderate until after Christmas, when a week of winter weather concluded 1869. The January of the present year was mostly mild, and on the whole dry, as was likewise the beginning of February, the first week or so being unusually dry; but the cold winds of the 11th, 12th, and 13th left their mark behind them, the windward side of single shrubs, trees, and other plants showing unmistakably the injury they received; belts of shrubs facing the north and east especially suffered. The amount of actual frost was never sufficient to account for the injury; it was the withering, biting north-east wind which continued for three or four days and nights which did the mischief. It was more to the night wind that the condition of vegetation at the end of this period may be attributed than to that of the days; while the drifting of the snow exposed many plants that would have otherwise been protected by a mantle of white. Broccoli

and other garden crops suffered, but the effects on shrubs and some other plants are difficult to comprehend, and different from those observable in most years. The leaves of the common Laurel were in most places so injured that most of them fell, while *Laurustinus* scarcely suffered, and it flowered profusely afterwards, although not so freely as in the spring of 1869.

The effects on plants near the surface were not less remarkable. Some plants of *Centaurea candidissima* which had stood three winters here were killed, and I find that *Cannas* in two large beds, which had remained even longer, are coming up very unevenly this season, and several, I imagine, are dead. I must, however, observe with regard to the *Cannas*, that in previous years I have been in the habit of covering the bed with leaves to the depth of 6 or 8 inches, or more, whereas last autumn the stems of the plants were merely bent down as evenly as possible, and covered with turf. I hardly know whether to blame the frosts in February or the wet autumn for the failure, and as yet I am not quite sure whether more of the *Cannas* are not alive. Some other plants that usually escape have also suffered: *Lavender Cotton* (*Stantonia inana*) has been killed in places, and *Verbena venosa* has also succumbed to cold or some misadventure. It is difficult to account for this result, for we grow the plant largely, and I find it is all but killed on a series of raised beds, of which the principal fault in summer is their dryness, while in some other beds on the surface, and more moist, it is coming up as thickly as turf, and at the time I write (June 29th) is coming into flower. I suppose the wind swept the snow from the raised beds, and the roots, being near the surface, could not withstand the frost that followed. *Gazania* where covered with the snow also escaped, and a bed of *Camellias* in the open air flowered very well in April; and against sheltered walls there has been no material loss of tender shrubs or climbers. The singular-flowered *Edwardia microphylla* presented us with a few of its blossoms, and the *Ceanothus dentatus*, *pellidus*, and *papillosus* have all flowered as usual. The common hardy shrubs and trees have been loaded with blossom, but this is mostly due to the autumn of last year, and not to the current season, which has been disastrous to newly-planted shrubs, owing to the absence of rain. The continued drought is doing very much injury to everything not deeply enough rooted to withstand it.

Of trees and shrubs browned on the north-eastern side, those of the *Pinus* tribe are pre-eminent, and perhaps the *Spruce Fir* is about the worst affected, and that which will be the longest in recovering, but none has escaped; even the *Wellingtonia* has suffered, and the worst in the collection here, excepting some Mexican *Pines*, is *Cupressus Kaighiana*, but it is coming round again. *Thujopsis borealis* does not seem to have a leaf turned, but it is rather sheltered; *Taxodium sempervirens* is quite as well sheltered, but it is very much injured. Most others have escaped, including *Cupressus Lambertiana*, which was so much injured in 1866.

I will now pass to the spring. Most people will be complaining of the absence of rain, yet it is something remarkable that although the growth of grass has been short, and the hay crop in this neighbourhood next to a total failure, yet the lawns and pastures have never shown those signs of distress we have seen them do in other years when the rainfall has been double what it has been in 1870. The reason undoubtedly is that a dry season inures vegetation to sustain it by degrees, and induces the roots to descend for moisture, instead of lingering near the surface to catch what may fall. In fact, it is a similar law which governs watering by hand—plants become accustomed to it, and cannot do without it. But although the grass fields are not so burnt up as they have been known to be, the growth has been very tardy, seed stems only are produced, and there seems to be a general languishing for rain, which hitherto has only fallen in very small quantities in this district. During the present year there fell barely 6 inches of rain in the first five months, ending May 31st. This is a small quantity where the average yearly rainfall of the past fifteen years has been upwards of 26 inches.

Although insects attacking trees and established plants, as *Rosae* and the like, have not been so common as in some years, there seem to have been more losses amongst small seeds than usual. Even where vegetation has taken place, the plants disappeared in a manner not easily accounted for; and in other cases the progress has been tardy. The greatest drawback in the kitchen garden is deficiency of Peas. *Strawberries* also threaten to be small, and *Lettuces* and other vegetables quickly run to seed. Of the hardy fruits, Apples are reported

scarce; Pears the same; Plums plentiful; Gooseberries and Red Currants middling; but Black Currants short.—J. Ransom.

### PLANTS FLOWERING IN MAY.

- May 3. *Meenopsis cumbria*  
*Ranunculus acris flore-pleno*  
*acuminatus*  
*amplexicaulis*  
*gramineus*  
*Polygonum bistorta*  
*Brassic*  
*Genista tinctoria*  
*Lotos corniculatus flore-pleno*  
*Pernettya mucronata*  
*Arabis hirsuta*  
*Lucida*  
*albida variegata*  
*Euphorbia amygdaloides*  
*Rhododendron hirsutum*  
*catalpaense*  
*Crataegus rosea*  
*Oxyacantha*  
*Armeria maritima rosea*  
*Polypodium peltatum*  
*Corydalis lutea*  
*Cerasus selicifolia pendula*  
*Saxifraga Andrewar*  
*Gram*  
*polita*  
*granulata*  
*Aizoon minor*  
 " 7. *Cytisus capitatus*  
*Syringa vulgaris*  
*persica*  
*alba*  
*Caltha palustris*  
*Anemone pulsatilla*  
*Prunus Padus*  
*Potamogeton crispum*  
*Foleumetum ceruleum*  
*Richardsoni*  
*grandiflorum*  
*Colombaster microphylla*  
*Nellia angustifolia*  
*Festuca glauca*  
*Phlox frondosa*  
*Neloni*  
*verna*  
*setacea*  
*Cupressus Lawsoniana*  
*Potentilla verna*  
*alba*  
*Cytisus alpinus*  
*Silene acaulis*  
*alpestris*  
*caucasica*  
*Aquilegia vulgaris*  
*slaneri*  
 " 11. *Beta maritima*  
*Agrostis elegans*  
*Gagea lutea*  
*Silvestrium anceps*  
*Aubertia deltoidea*  
*Campbelli*  
*græca*  
*Mooreana*  
*purpurea*  
*Saponaria ceymoids*  
*calabrica*  
*Anthriscum majus*  
*Syringa Josikua*  
*Faonia Montana*  
*knautia*  
*Clematis Fortunei*  
*Standishi*  
*Genia rivale*  
*montanum*  
*grandiflorum*  
*Asperula odorata*  
*Glaux maritima*  
*Myosotis palustris*  
*alpestris*  
*sylvatica*  
*Arenaria hyperborea*  
*Oenothera umbellatum*  
*maritima*  
*umbellatum*  
*tricolor*  
*lutea*  
*erecta*  
*Pyra Sorbus*  
*Aucuparia*  
*pendula*  
*Aria*  
*Aconitum nemorosum flore-pleno*  
*stellata*  
*Cytisus Laburnum*  
*Crataegus Crægaulli*  
*florida*  
*Minthus crepus*  
*viridis*  
*maculosa*  
 " 16. *Clematis florida*  
*Gentiana acutula*  
*Æsculus hippocastanum*  
*Pavia rubra*  
*May*  
*Astragalus monspeliensis*

- May 16. *Cochlearia officinalis*  
*Hesperia matronalis*  
*Polygala Chamæboxus*  
*Erinus alpinus*  
*Achillea Clavensis*  
 " 19. *Azalea pontica*  
*Lilium purpureo-crenatum*  
*fulgidum*  
*Tamarix germanica*  
*Euphrasia alpinum*  
*Linaris biennis*  
*Berberis vulgaris*  
*Anchusa sempervirens*  
*Symphytum asperum*  
*caucasicum*  
*Dodecatheon elegans*  
*Chelidonium majus*  
*apocynum*  
*Aconitum Napellus*  
*Aquilegia vulgaris*  
*Ajuga reptans alba*  
*variegata*  
*Tulipa forestiana odorata*  
*Rosa lutea*  
*Cornus varia*  
 " 23. *Alchemilla vulgaris*  
*coarctata*  
*alpinia*  
*Centauria ruber*  
*Diana sempervirens*  
*Linum perenne*  
*lavium*  
*Eriogonum alpinum*  
*Villarsii*  
*Corydalis nobilis*  
*cava alba*  
*Platanus occidentalis*  
*Alum alba*  
*azurum*  
*Salix hirta*  
*Cerastium tomentosum*  
*Richteri*  
*Thymus languiosus*  
*vulgaris*  
*Dorila Euphratica*  
*Trollius europæus*  
*americana*  
*Verbasum phloxium*  
*Cine major*  
*purpurea*  
*Cynodactylon montanum*  
*Wegelia rosea*  
*Quercus lobur*  
*Cercis*  
 " 24. *Rhododendron Loweii*  
*Spiræa bella*  
*Viburnum Opulus sterilis*  
*Ribes alpinum*  
*Sedum disphyllum*  
*reflexum*  
*Sempervivum montanum*  
*Saxifraga tridentata*  
*tridentata*  
*Cornus sanguinea*  
*Nyctria odorata*  
*C. atrorubra macrostemon*  
*Pernis selicifolia*  
*Chrysanthemum grandiflorum*  
*Listera ovata*  
*Orchis Morio*  
*insulata*  
 " 29. *Hyacinthus non-scriptus*  
*Polygonatum multiflorum*  
*Lilium bipartitum*  
*Pajavir involucratum maximum*  
*Veronica sylvatica*  
*Antioxanthum odoratum*  
*Agrostis elegans*  
*Ros alpina*  
*Cerasus pauciflora*  
*Pachystylis glauca variegata*  
*Briar maxima*  
*Psoma corallina*  
*spicosa*  
*Claytonia perfoliata*  
*Cracineia stylisa*  
*Botrychium Lunaria*  
*Prunus americana*  
*Oxiglossum vulgare*

annua, among others *Gilia liniflora*, a very distinct species, with large white Flax-like flowers. Will you kindly allow me to state that the plant in question was introduced by me last year from California?—W. THOMPSON, *Iparrich*.

### UNPATENTED PLANT PROTECTORS.

I REMEMBER observing some time ago in your Journal an announcement that the gentleman who has taken out a patent for putting a groove in a brick, in order that it may support a sheet of glass, proposed to proceed against another gentleman who had imagined himself at liberty to put a groove in a piece of wood for the same purpose. If this is the case, the patent laws may well need revision, and there will be many who will agree with Sir Roundell Palmer in thinking they do more harm in obstructing the progress of science than good in rewarding merit. Doubtless it has not escaped the recollection of all your readers that a patent was given some years ago for attaching a hinge—a very great novelty, one would think—to a ground viney, when the viney itself, which was indeed a serviceable and new thing, had been protected by no patent, which is much the same as if one man were to invent a flying machine, and another were to take out a patent for it because he had thought of painting it sky blue.

The patented glass protectors I have tried, and cannot say much in their favour. Unless three or four bricks are piled upon one another to a height which is precarious, there is not room in them for Strawberries, much less for Vines. They are of most service in winter for protecting plants for salad, which are not so tall. But they are apt to break the glass. Mine were held together by running a strong lath through the hollow bricks, which prevented their ever being knocked down; but the inevitable upheaval and sinking of the soil under the frosts and thaws of winter brought the rude edge of the brick into such harsh contact with the brittle glass, that much damage was done, and I am inclined to think that the gentleman who excooped a groove of wood was the more worthy inventor of the two. The bricks are also costly to buy and cumbersome to have sent by rail.

However, why not do without wooden support or brick support, escape all danger of infringing patent laws, and have your protector of glass only? Nothing easier. Drive some stout stakes into the ground along your row of Strawberries or Peas, or whatever you care to protect. To the top of these stakes fasten a lath, against which your glass will lean, set up on end like the cards with which a child begins to build his card house. Your lath will be 12 or 18 inches from the ground. As you wish your glass to cover much ground or little, a broad plank or a tall, present at abuse or an acute angle. Viewed endwise, your structure will present the appearance of a pointed tent; sideways, of a long glass ridge. The glass should not be less than 20 by 12; 21-in. will be the most durable, and here the third or fourth quality will do well enough. A frail structure, if you please, but thoroughly transparent, all glass; and the wind will have no power to blow it down if you run some strong string outside it from end to end, fastened to the end posts, and tightened from time to time as it slackens with the weather. Ventilation may be given *ad libitum* by slipping the panes over one another.

I will undertake to say that with due ventilation Strawberries of higher flavour may be grown in this way than out of doore, and they ripen ten days or a fortnight earlier. Peas certainly will ripen a fortnight earlier. When they reach the top of their "house" the southern side may be taken away, and the Peas allowed to ramble on the ground; or if sticks are required, glass may be set perpendicularly on either side against the sticks, secured as before with a cord, and it will afford considerable protection, but the other plan brings the first Peas I ran a ridge along an Asparagus bed, but there it did not make any perceptible difference. One advantage of the plan is, that when your glass houses are no longer wanted they are put in a box and out of sight, instead of lying about cumbering the ground.

Will you put my plan in practice and give me the patent of your approval?—WYSEIDE.

UNDERGROUND FLOWERS.—A vegetable curiosity, met with in New Zealand, has been described by Mr. Taylor, says the *Scientific Review*, in whose honour it has been named *Dactylanthus Taylori*. He describes the plant as a parasite, which attaches itself to the roots, and not like others to the branches,

—M. H., *Acklam Hall, Middlesbrough-on-Tees*.

GILIA LINIFLORA.—In a recent number of your Journal I find a report of an exhibition of plants at Paris, at which Messrs. Vilmorin, Andreux, & Co., are stated to have shown some new

of trees. It has no leaves, but the stalk is covered with brown scales; the petals of the flower are slightly tinged with pink in the centre, but, in general, they are of a dirty white or brown colour, and transparent; the stamens are white; the flowers have a strong smell, partly fragrant, though earthy and unpleasant. This plant forms a large excrescence on the root of the *Tataka Pittosporum*, which is covered with warts; these increase and become buds. A dozen or more flowers are often on one stem. He first met with it in the mountains near Hikurangi. Mr. Nairn found a similar parasite in the forest

at the base of Mount Tarabaki; this was also attached to the root of a tree, and had a number of flowers upon it of a light-blue colour. Mr. Williamson afterwards gave Mr. Taylor another specimen, which he found in clearing some ground. The whole plant and flowers were entirely covered with vegetable mould; the stem between the bracts was of a rusty brown; there were twenty-five flowers open at once. Another excrescence had eighteen. He states that the odour of one plant was something like that of a ripe Melon, whilst the other had also a disagreeable earthy smell.

### AN AMATEUR'S ORCHARD HOUSE AND MANAGEMENT.—No. 2.

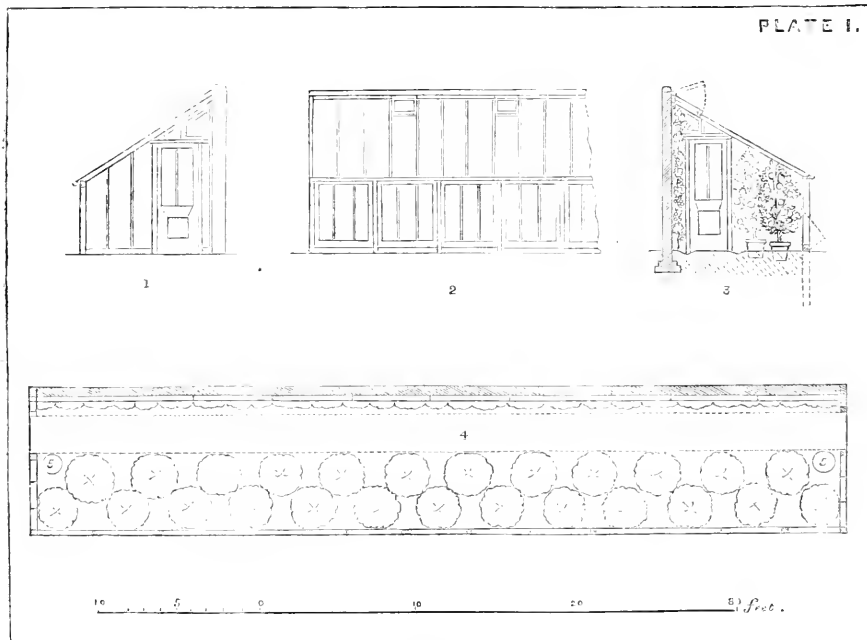
[Knowing that in some country districts it is difficult to find a builder capable of constructing an orchard house, unless furnished with working plans, we sought aid from Mr. J. Coleson, architect, Winchester, and the following is his reply.—Eps.]

I SEND you two designs for orchard houses, such as I think may meet the wants of amateurs. One is for a lean-to, and the other for a span-roof. The lean-to need not be in a straight line, but may fit into any angle formed by existing buildings or walls, part facing south and part east; or if the eastern aspect cannot be had, part south and part west, but I do not recommend the west. It will be seen that the lean-to house, having a ground area of 400 square feet, will hold twenty-five trees in pots, and give a wall surface of 450 square feet for Vines, and that the span-roofed house, with the same ground area, will hold twenty-six trees; but in order to do this the trees must be put closer together, otherwise it will only hold twenty-four. Now, with regard to the Vines, if they are grown in the apex

of the roof, they must in a great measure shade the other trees, and at the most an area of 200 superficial feet could be obtained, being not half that of the lean-to. I have therefore suggested, for I am not aware that it has ever been suggested or tried before, that two wire trellises be set up in the centre of the house; this would then give an area of 304 feet for Vines, still much less than that afforded by the lean-to; but I feel quite sure that Grapes would ripen well in such a situation, and by this arrangement the space enclosed by the structure is economised, and the Vines can be more easily attended to on a vertical surface than under the roof. The tendency to start at the ends of the rods can better be checked by bending them horizontally.

#### SPECIFICATION FOR LEAN-TO HOUSE.

The front posts to be of oak, 4 inches by 3, let into the ground 3 feet, all sap to be taken off, and the part underground to be tarred or charred, and the earth to be well rammed round them.



#### PLATE 1.

A design for a lean-to house, 50 feet long by 8 feet wide, inside.

Fig. 1.—Elevation of one end.

Fig. 2.—Part elevation of front.

Fig. 3.—Section.

Fig. 4.—Ground plan.

Fig. 5.—Water tubs.

#### PLATE 2.

A design for a span-roofed house, 35 feet long by 16 feet wide, inside.

Fig. 1.—Ground plan.

Fig. 2.—Section.

Fig. 3.—Elevation of one end.

Fig. 4.—Part elevation of one side.

Fig. 5.—Water tubs.

#### PLATE 3.

Details applicable to both houses.

Fig. 1.—Interior elevation of one of the front lights.

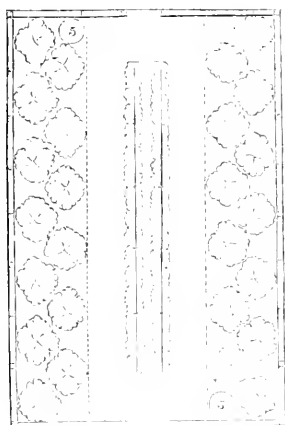
Fig. 4.—Plan of front lights.

Fig. 2.—Section of ditto.

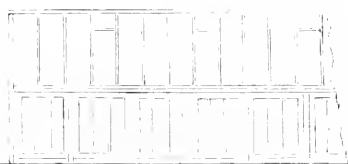
Fig. 3.—Section of one of the top lights.

Fig. 5.—Section of bar for glass, half full size.

PLATE 2.

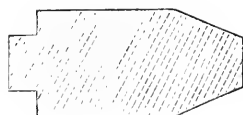
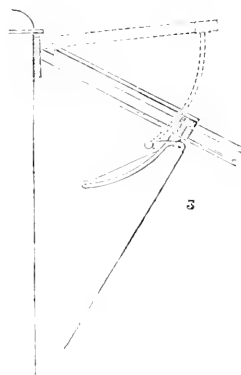
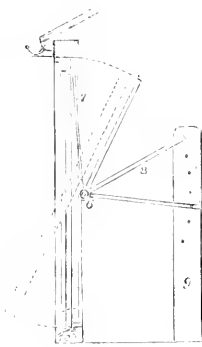
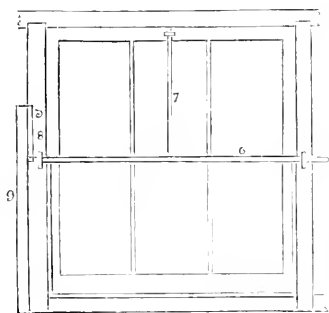


10 5 0 5 feet



5

PLATE 3



10 5 0 5 feet

The sill to be of oak or Memel fir, 4 inches by 3, and splayed on the outside. The front plate to be of Swede fir, 4 inches by 3, notched on the top of the posts half an inch, and well nailed on. Ridge piece, 7 inches by 1. The bars for glass to be of deal, 3½ inches by 1½, as shown, *fig. 5, plate 3*; the end bars on roof to be rebated and chamfered on one side only. The doors to have solid rebated frames, 3½ inches by 2, and oak sills; 1½ inch panelled, and square doors, hung with 3-inch butt hinges, and fitted with 4-inch locks, with two bolts; 6-inch japanned iron hooks to secure doors partially open, and oak posts, and 3-inch hooks to secure them wide open. The end lights over top of doors to be of deal, 1½ inch thick, hung with 2-inch butt hinges, and fitted with iron stays with holes and pins.

The top lights to be of deal, 1½ inch thick, worked according to *fig. 3, plate 3*, with 2-inch butts, curved iron stays screwed on, 1½-inch screw pulleys, and patent lines. The front lights to be worked according to *figs. 1, 2, and 4, plate 3*; to be of deal, 1½ inch thick, 2½-inch top rail and stiles, and 3-inch bottom rail, hung at the centres with iron pivots, and fitted with a bar and rods as shown. 6 is a 1-inch iron bar running half the length of the house, fitting in staples driven into each post, but turning easily in it; 7 is a ¾-inch iron rod rivetted into the bar, and running in an eye let into the light at the top rail, one to each light; 8, a crank fitted at the ends of the bars next the door, with a hole and pin at the end; 9, a post let into the ground with holes for the pin in the crank; by lowering or raising the crank the whole of the front lights attached to the bar are opened or shut at once, as shown by the dotted lines. Iron rods ½-inch diameter placed horizontally at 9 inches apart, are to be fixed to the back wall, with iron pins and eyes at a distance of 4 inches from the wall, and 4 feet apart horizontally; an iron bar, five-eighths of an inch by three-sixteenths, is to be screwed to the bars for glass the whole length of the house, at half the length of the bar. The glass to be 16-oz. sheet glass, in squares 1 foot deep; each pane on roof to be bradded at the bottom, and to have a half-inch lap, that on the vertical surfaces to be butt-jointed, and the whole to be well puttied in, and back puttied. All wood and iron work to have three coats of white paint, one coat to be put on before glazing. To fix to the eaves a 2-inch zinc gutter, and convey the water to the tubs (*figs. 5*), and with zinc overflow pipes to the outside.

If a back wall has to be provided, it may be either of brick or of wood; if the former it should be 9 inches thick, built hollow on edge, and all headers to go through the wall, the top to have a course of slate inserted over the ridge piece, the surfaces to be neatly pointed, and the inside to have two coats of lime white.

If the latter, the sill to be of oak, 4 inches by 2; quarters, braces, and head, of fir, 4 inches by 2, and three-quarter-inch deal weather-boarding lapped half an inch, painted three coats on outside, and two coats lime-white on the inside.

#### SPECIFICATION FOR SPAN-ROOFED HOUSE.

The specification for the "lean-to" house will answer for that with the span-roof, except with regard to the following:—

The oak posts to have oak spurs, and sills 4 inches by 2 framed to them; the flat iron bar five-eighths by three-sixteenths, to be screwed also to the upright bars at both ends of house, and secured at the ends to the plate and door posts. The two trellises for the Vines to be formed of half-inch iron rods for uprights, secured at the top to the rafters, and at the bottom to oak posts driven into the ground, with horizontal rods, as specified for the "lean-to" house, tied to the uprights with wire.

If brick footings are put under the oak sill, instead of using oak posts let into the ground, the uprights between the front lights may be of fir, but in this case the roof must be tied together at every 8 feet with iron tie rods, or by the iron rods recommended by Mr. Pearson, in his little book on the "Orchard House." The front lights in this case will require only one crank on each side.—J. COLSON, Architect, Winchester.

THE TEMPLE GARDENS.—At the recent visit of H.R.H. the Princess Louise to open the new hall of the Inner Temple, these gardens were in an unsightly form, owing to the great alterations then going on in widening the carriage way on the north-side frontage in Crown Office Row. To effect this, about 15 feet of the gardens had to be taken away, entirely destroying the great Chrysanthemum bed, where this autumnal flower used to draw annually so many thousands of visitors. Since the death of Mr. Broome, Mr. Newton has been appointed

Mr. Broome's successor, and now that the road in front of the offices in Crown Office Row is finished and the railings put up, the present gardener has displayed great taste in laying out the gardens. A new bed for the annual Chrysanthemum show has been formed, extending from one end of the railings to the other. Plants inserted in the newly-made bed look remarkably strong and healthy, and have already attained a height of nearly 6 or 7 inches.

The garden now covers a considerably greater space towards the Thames Embankment; in fact it covers the crown of the Metropolitan Railway, and there is now a clear space of 550 feet from north to south. A handsome mound formed by 2000 loads of earth has been raised, sloping to the Inns of Court Volunteer practice ground; and numerous fancy beds stocked with Pelargoniums, Fuchsias, Calceolarias, Verbenas, and other plants have been formed. The side grounds at the back of the chambers in Paper Buildings and Harecourt Buildings have also been planted with great taste and skill, and the garden promises to be a far more favourite resort to the citizens of London than even in former years.—CHARLES T. FOWLER.

#### GROWING CELERY IN BEDS.

As the cultivation of Celery in beds has been spoken of in terms that would lead to the impression that it is a new idea, it may be of service to the general reader to know that it has been practised for a great many years, possibly ever since the vegetable was subjected to cultivation, and is still adopted in most places where large quantities of Celery are wanted. The planting and management, however, differ in some respects from the method described by Mr. Castle, vol. xvii., page 399, and it is, therefore, possible that some grower who has adopted the latter system, may have abandoned it in consequence of the trouble in earthing-up; but the mode I have adopted for thirty years and more, and which was known and practised years before, presents greater facilities for earthing-up.

Assuming that there is a plot of ground available for the purpose of forming a bed or series of beds, we generally make our beds 5 feet wide, and so long as the space will permit. The soil is thrown out about 6 inches deep, heaped up on the sides, and a liberal allowance of manure is dug into the bed some time before planting. When the bed is ready for planting, the plants are placed in rows across the bed, not longitudinally; the advantage of the rows across being in the greater ease with which the earthing-up is effected.

In general, we plant much more thickly than where very large Celery is desired; but in many places those having this salad to prepare for table strip the heads down to very limited proportions, by taking off several of the outer stalks until only the centre is left, and then whatever credit there may be in having Celery of large growth, it is entirely lost sight of, and number, not extraordinary size, is the requirement of the times. This state of things renders it necessary to grow a larger number of plants, and there can be no question the bed system produces a greater number in a certain space of ground than can be obtained in rows some distance apart, and I have never seen any perceptible difference in the quality or keeping properties of the Celery. A larger head can, no doubt, be obtained on the single-row system, but as already stated, this is not of so much importance in many private places as it is with the grower for market.

A champion of the bed system has described, in page 415 of the same volume, his mode of growing Celery, but as his cultivation differs from mine, your readers may judge for themselves. Both plans have their merits. In "J. W.'s" case he employs his beds as a shelter for bedding plants late in spring; with me it is seldom I can have the ground intended for Celery at liberty until shortly before it has to be planted; early Peas, Potatoes, late Broccoli, or some other crop not being off the ground until it is nearly time to plant the Celery. I therefore rarely dig so deep a bed as "J. W." recommends, but usually make mine 5 feet wide, and instead of four or five rows longitudinally, the beds are always planted with cross rows from a foot to 15 inches apart, the plants being from 6 to 9 inches from each other in the row. These distances are much closer than those often adopted, but if all the other conditions for growth be favourable, it will be found that very good Celery may be grown in this way.

Some one will probably ask, "How about the earthing-up?" To this question I can answer that I believe by the mode we adopt there is really less labour than in the usual way of earthing-up Celery in single rows. Our method is this:—

Having three or four (not less than three will do) thin boards about 8 inches wide, on beginning to earth-up from one end, a board is placed on edge at each side of the first row, and the third board is fixed in the same manner against the side of the second row. Each board is held in its place by pointed sticks driven into the ground. The earth is thrown against the boards after having been broken sufficiently fine, and when enough has been thrown in, the boards are withdrawn, together with the sticks, and placed against other rows in a like manner. Thus the process of earthing-up resembles the filling of long wooden troughs, a little working in by the hands against the plants being all that is wanted, and not always this. The boards, it will be understood, are of just the same length as the rows—namely, 5 feet. A man on each side will earth-up a large quantity in a short time. Perhaps the plan may be deemed too homely, but I have a liking for simple methods if they attain the object required, in preference to more complex ones, and as it answers very well, I see no advantage in changing it.

With "J. W.'s" views on earthing-up Celery all, or nearly so, at a time I would perfectly agree, if we had the ample rainfall in Kent which he probably has at the place whence he writes; but in periods of very dry weather, where artificial watering is out of the question, I find an inch or two of earth thrown against the plants assists to keep in the moisture, and probably this is repeated if the dry weather continues. I may here remark that during dry, hot weather Celery makes but little progress in Kent unless it is watered by hand, and it is not until the autumn rain sets in that much growth takes place. It is in consequence of this that better early Celery is often met with in the midland and northern counties than with us, while, perhaps, for quality in the autumn, that grown in the market gardens around London will be difficult to surpass.

We grow the variety originally called Seymour's nearly thirty years ago; in size it is dwarf, but blanches well the full length of the stalk.—J. ROBERTS.

### SONG BIRDS IN FRANCE.

Your correspondent "C," in the last number of the Journal, complains of the scarcity of song birds in France, and gives as a reason that "the Frenchmen had eaten the songsters." I should wish to ask how many singing birds a traveller would hear on a journey from London to Edinburgh. Dusty high roads and noisy railways are not exactly the resort of the feathered tribes. My experience differs widely from that of your correspondent, as I was delighted to hear, at a great many railway stations at which the train stopped, during a journey I made three years ago from Lyons to Marseilles, the note of the nightingale. Frenchmen *do* eat robin redbreasts, and a very delicate morsel they are when fat in autumn, quite equal to the blackcocks of Italy. There is no country in the west of Europe where birds are more stringently protected by game laws than France, as the shooting of even a sparrow after the closing of the shooting season, which takes place about February, is punished by fine and confiscation of the gun; so that if the three chateaux mentioned by "C," "equipped with double guns, and fully armed to do death unto a breeding linnet," had fallen in with a *gendarme* or a *garde champêtre*, they would certainly have been made amenable to justice. The number of thrushes in France must be something enormous, as thousands are brought daily into Paris during the vintage (October), and fetch at least a shilling each in the market. But these are all birds of passage, nine-tenths of which are born in England, and after having fattened on the ripe grapes in France, are killed to supply the tables of the *gourmets* under the name of *grives*, which many of your readers have no doubt eaten at the restaurants of the Palais Royal in Paris.

For my part I delight in hearing the song of the blackbird and thrush in my garden, and do not allow their nests to be molested, as I know that large quantities of insects are consumed by these birds during the breeding season; but when they eat my Cherries the case is different, and I eat them, knowing that in the ensuing spring there will be the same number to charm me with their song, and be useful in ridding my garden of vermin.—TOURIST.

NOBLEMEN AT WORK.—Few of us have any idea of the fondness of the English aristocracy for real hard work in their gardens and grounds. Earl Vernon, formerly President of the

Royal Agricultural Society of England, would work all day, hoe in hand, with his labourers, and as hard as any of them. The writer of this paragraph has seen his nephew for hours, axe in hand, thinning out his own plantations; and once saw him with the Duke of Wellington, both together with a cross-cut saw, cutting down a large Buttonwood. These reminiscences are called up by an American correspondent who recently visited Mr. Gladstone, the English Premier, at his home at Hawarden, and who found him hacking away at a Beech 14 feet in circumference. He takes great pride in his ability to do hard work, and believes, the correspondent says, that physical exercise induces a good appetite, and that this again reacts on mental vigour.—(American Gardener's Monthly.)

### GLOIRE DE DIJON AS A STOCK FOR MARÉCHAL NIEL ROSE.

In February, 1869, as an experiment I grafted in the ordinary manner a few Maréchal Niel Roses on Gloire de Dijon on potted Manetti stocks. I may say they quite exceeded my expectations, as from a small plant in a 6-inch pot, and which bloomed in March last, I had fourteen large and finely-developed blooms of a much richer colour than I had ever before seen. The growth of Maréchal Niel is much more compact on the Gloire de Dijon stock, and I believe it will bloom more freely and of a deeper golden yellow than on any other stock.—WILLIAM LOCK, The Nurseries, Sutton, Surrey.

[This stock was long since recommended in our pages by the gardener at Acklam Hall, and by Mr. Rivera.—Eps.]

### COVENT GARDEN MARKET.

COVENT GARDEN, formerly the Convent Garden, derives its name from having been a garden attached to the convent of the Abbots of Westminster. At the dissolution of the monasteries and religious houses, the Convent garden and its appurtenances were given to Edward, Duke of Somerset, the Protector, but on his attainder it reverted to the Crown, and in 1552 Edward VI. granted it to John, Earl of Bedford. The names of several streets in the neighbourhood,—such as Russell Street, Bedford Street, and Bedfordbury,—reminding one of the same names employed in connection with fine streets and squares not far distant, suggest the possession of most valuable property in the hands of the Bedford family, and that the suggestion is correct need not be insisted on. For more than three centuries the Bedford family has owned a large portion of the ground in what, in these matter-of-fact days, we call the W.C. district: and no one can ramble in the neighbourhood of Covent Garden Market without every now and then being reminded of the territorial rights of the ducal house of Bedford. Francis, the fourth Earl, determined on inclosing part of the Convent garden, and in 1634 engaged the renowned Sir Inigo Jones to superintend the alterations. The celebrated architect built the handsome piazzas on the north and east sides, and these piazzas were originally continued along the south-eastern side, where the Hummums Hotel now stands; but this portion of the structure, a few years after its erection, was so injured by fire in adjoining houses, that it was pulled down, and not rebuilt. The Italian *piazza*, the reader will remember, corresponds to the French *place* or the English square, but the Italian idea always includes a covered way or colonnade. Everybody now regrets that Sir Christopher Wren was not allowed to carry out his designs in relation to St. Paul's, and in like manner it may be regretted that the plans of Inigo Jones in regard to Covent Garden were not adopted. Had this been done it would have become one of the finest places or squares in London, instead of being, as now, an eyesore and a failure, continually suggesting a painful contrast between what the place might have been, and is; and a still greater contrast between what it is, and what it ought to be. But the fame of Inigo Jones yet clings to the locality, and is connected especially with St. Paul's church, in reference to the erection of which a characteristic anecdote is related. In 1640 the Earl of Bedford sent for Inigo Jones, to build a chapel for the tenants living on the estate. "I wish," said the Earl, "that the edifice be as plain, as convenient, and as little expensive as possible; in fact, I would not have it much better than a barn." "Then, my lord," said the architect, "you shall have the handsomest barn in England." The dealers in the present day would often

be grateful for even the shelter of a barn for themselves and their goods. When St. Paul's was built, the great square of Covent Garden was thus formed; the wall of the garden of Bedford House stood on the south; on the north and east sides were the piazzas; and on the west this church. About 1656, a few temporary sheds and stalls at the back of the garden wall sprang up, and this was the origin of the market, which was legally established by Royal Letters Patent, granted by Charles the Second, in 1682, "that the said William, Earl of Bedford, his heirs and assigns, should and might from thenceforth for ever have, hold, and keep a market," &c. Bedford House was pulled down in 1704, and a line of street arose in its place. During these alterations the stall and shed keepers huddled together in a pell-mell sort of way (Covent Garden seems always to have been afflicted with makeshift and hap-hazard) in the centre of the square; and here fruits, vegetables, herbs, &c., the &c. being very comprehensive—were sold.

Many who still have business relations with the market remember vividly what it was about the year 1825. It was then simply an irregular collection of sheds, or huts, or stalls,—shops would be too fine a word,—in which were sold all sorts of articles; china and crockery, old iron and knickknackery, live poultry and birds, eggs and butter, fruit, flowers, and vegetables—all in a chaotic display as befitted the place, which was badly paved, and badly managed in every way. The immediate neighbourhood, too, was frequently the scene of midnight and early morning brawls and riot. There stood at the east end a low building called Carpenter's Coffee House; it was a notorious house, with a pet appellation familiar to the readers of the chronicles of the time when George the Fourth was King, under the name of "The Finish;" and here the Tom and Jerry of the period could obtain refreshments of a different kind from those in which they had previously too much indulged. There were then no regular constables, and legal authority was represented by the persons of an old beadle and an older watchman, both worn out, and capable of doing little more than calling out the hours. The late Duke of Bedford let this market—to apply to the place a too flattering term—on lease to Messrs. Prince and Lowden, whose chief aim seems to have been to levy high tolls, which suited the lessees very well, but which was grossly unfair both to the selling and buying patrons of the market, whose interests were not in the least studied. The natural result was, that the lessees and the market gardeners were continually in litigation, and the latter, acting on the motto that union is strength, raised money among themselves to defend their rights. In 1828 this co-operation developed into the formation of the Market Gardeners', Nurserymen's, and Farmers' Association, an association which has been more or less in antagonism with the owner and managers of Covent Garden Market ever since, showing there is wrong somewhere. Where that wrong exists, will presently be seen.

At the expiration of the lease in 1828, the Duke determined to erect a market, for it can scarcely be said that a building for the purpose existed before. In that year a private Act of Parliament was obtained. The plans of Mr. Fowler were approved and carried out, at a cost of about £43,000. A facade was added on the north and west in something like harmony with Inigo Jones's piazzas. The centre is formed by an arch on the entablature of two Tuscan columns, with a single-faced archivolte supported by two piers, which sustain an elevated triangular pediment. The tympanum of this is adorned by the armorial bearings and motto of the Bedford family, *Cherchez la vérité* (what will be will be)—a motto well illustrated by the extraordinary apathy which has allowed things to take their own course at Covent Garden Market, as though the doctrine of fatalism had crushed out the spirit of energy. On each side of this centre is a colonnade of the Tuscan order, projecting in front of the slopes. The columns on the north, south, and east are of granite, in the Palladian-Tuscan style, and, with the ornamental balustrade, have a fine effect. Over the centre of the building are the Bedford conservatories. The appellation suggests something very different from what this part of the market is; it is simply dreary, desolate, and dull, and throughout conveys the idea of deadened enterprise. The central arcade, or grand avenue running east and west, consists of a number of poorly built shops; but the character of the structure is not noticed by one in a thousand, consequent on the splendid display of fruit, flowers, and vegetables in the windows. This arcade is a favourite lounge, and in fine weather, when flowers abound and plants are in luxurious profusion, a saunter about Covent Garden Market is a pleasant way of spending an hour or so. But it is impossible for the thoughtful saunterer

to avoid the conviction, which is forced upon him at every turn, that the market is far from what it ought to be. Mr. Fowler's plans appear to have ignored its purposes, and certainly its probable development. At first the "shops" were mere sheds, utterly unfitted for the trade that might reasonably have been expected, and it was found necessary to throw two into one; and then the granite pillars, handsome though they be, occupy too much out of an inadequate space, and cause convenience and comfort to be sacrificed to show.

The two great defects of Covent Garden Market are apparent to the most casual observer, but they are seriously felt by the growers, salesmen, and purchasers; and the only marvel is that they have existed so long. These defects are insufficient space and want of shelter. For more than twenty years the Market Gardeners' Association has been endeavouring to obtain a reform in both these respects, but in vain. This Society consists of food-producers, to whom the metropolis is to a great extent indebted for its supply of vegetables and fruit, and, therefore, their representations on a subject with which they are practically acquainted, and involving great hardships to themselves, have deserved more consideration than they have met with. The Association has advocated the extension of the market as far east as Bow Street. This would give plenty of room to carry on the business, and would be a great boon, not only to the growers, who now justly complain that they are not studied, but to the public. Nor would this additional space be more than is wanted. The present market is notoriously too small for the quantity of goods forwarded, besides which, a great deal more would be sent were there fair facilities for its reception. Immense quantities of vegetables and fruit are not sent to London, for no other reason than that there is not adequate market accommodation. The supply which the metropolis could command, did it possess, as it ought to have, a fine large commodious market, is practically limitless. In the immediate suburbs, in Essex, Middlesex, Kent, and Surrey, a very large proportion of the land is devoted to the production of vegetable food for that omnivorous monster, London; and food supplies, in these railway days, come from all parts of the country and from abroad—for example, early Cabbages and Broccoli from Cornwall; Peas, Grapes, and vegetables from the Channel Islands; Lettuce, Peas, &c., from France; Potatoes from Belgium, Holland, and the Scilly Islands; Walnuts and Cherries from Belgium; and especially large supplies of fruit from the sunny orchards and vineyards of *la belle France*. It need scarcely be pointed out that, if it were not for the foreign supply, London would in some seasons have very little fruit, so much are we, in this variable climate of ours, at the mercy of frosts and blights. It is true that the foreign growers who send in these supplies can generally reckon on shelter for their goods, an unfair advantage which they have over the English growers; but they cannot always depend on this, for the supply may be exceptionally large, and they can never ensure sufficient accommodation in unloading and delivery. Inadequate space is, indeed, an undeniable fact, of which anyone will be convinced who visits the market—and it is one of the sights of London—early in the morning. He will find the streets all round blocked up with railway vans, market carts, and heavily-laden waggons, and the whole neighbourhood a scene of confusion which ought not to be necessary. Intimately connected with this defect is the want of shelter; for producers and products are left exposed to all kinds of weather, to the injury of both; and both are treated with about as much consideration. The Association to which allusion has been made has had many meetings on the subject, and has memorialised the Duke of Bedford to cover in the market, offering to pay an increased rent for the accommodation. But the reform has never come, and does not seem likely to come. The consequences are, that the health of that large proportion of the salesmen, for whom no shelter is provided, is injured by standing in rain and wind for hours; that they frequently cannot expose their fruit for sale, and trade is thus deadened; and that when soft fruit is exposed it is frequently spoilt, fermentation sets in, and the poorer class, who become the purchasers, suffer from illness. It is really marvellous that the great metropolitan market should possess far less accommodation than the markets of many a provincial town in our own or foreign countries; not to make odious comparison with splendid markets such as those, for example, of Paris. London notoriously requires more commodious markets than it possesses, and nowhere is this great want so keenly felt by all concerned as in Bedford-land.—J. M. PHILP. (From "The

Food Journal," a monthly periodical abounding in useful information.)

### A LARGE OAK TREE AT BEAUDESERT.

As trees of extraordinary size are often preserved as curiosities, and most deservedly so, it is not often that we come across one recently cut down, yet such was my fortune one day last summer in the course of a ramble in one of the midland counties. Some very fine oak timber was pointed out to me that had recently been felled in the park of Beaudesert, the seat of the Marquis of Anglesea, near Rugeley, and one tree, especially, seemed so much larger than is usually met with, that I made particular inquiries about its measurement, and was told its contents exceeded 900 cubic feet, the bole of the tree being about 800, and the limbs the remainder. That which was more remarkable, this giant of the vegetable world seemed perfectly sound, exhibiting scarcely a flaw of any kind, and I was told its top appeared healthy before it was cut. The site was the side of a gentle slope, and the tree stood alone, there being nothing in the park nearer to it than 100 yards or so. The soil, an important subject to inquire after where so large a tree is concerned, did not appear inviting to the farmer; higher up the slope of the ridge where the tree had been growing, Fern prevailed over all other vegetation, while lower down were Rushes; and the tree grew about the spot where the one class of vegetation gave place to the other. The ground did not appear to be particularly dry; the surface soil was thin, overlying a considerable depth of stone shatter, from which the roots of this tree must have withdrawn much of its support. To ordinary appearance calcareous matter seemed to be absent, or if present, to be in very small quantity.

There were several other Oaks standing, and in good health, although evidently of great age, and some of them were of great size. I thought that described the largest, but as a tree on the ground appears much larger than when it is standing upright, others might be as large. It was a magnificent tree, and I was afterwards told there was much difficulty in conveying it away, and a carriage had to be built on purpose, and a number of horses, aided by a traction engine, drew it by degrees until it reached the highway. I believe it was intended to convert it into furniture, as it was thought its great age and size would insure beautiful markings. Its immense size attracted much attention at Stoke, whither it was sent. I hope some one will tell us more about it, as it is not often so fine a tree is felled.—J. ROBINSON.

### NOTES AND GLEANINGS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION will hold its twenty-seventh anniversary at the London Tavern on Wednesday next (June 29th). The Earl of Derby is to preside, and we trust the claims of the Institution to the support of gardeners and their employers will be at least as well responded to as in former years.

It is worthy of mention that the idea of the HALFPENNY CARD POSTAGE, which is shortly to come into operation, originated with Mr. Beale, of the firm of James Carter & Co., the eminent seedsmen of Holborn, and that Mr. Beale has received an acknowledgment from the authorities to that effect.

### WORK FOR THE WEEK.

#### KITCHEN GARDEN.

NEVER has the advantage of deep cultivation been more apparent than during this dry weather. Crops growing in ground that had been well trenched and pulverised last winter and spring, have progressed with a rapidity and vigour quite foreign to those that are in ground that had only a single-spit digging. The reasons for this are obvious: in the first place the roots of the plants penetrate to a greater depth into the soil with ease, and, in the second place, the quantity of air in the soil, coupled with pulverisation, prevents rapid evaporation. Deep culture, drainage, the proper application of manure, and a thorough destruction of all weeds, are the grand secrets of cultivation, whether for the farm or the garden, for wet weather or for dry. Where a sufficient breadth of Celery is not yet planted out this must be attended to as speedily as possible, and water must be given until the plants are well established, otherwise good-sized heads can hardly be expected. Earth-up former plantings, and encourage rapid growth by occasional waterings

with liquid manure. Let early-flowering Herbs be cut and dried for winter use. Tomatoes must be regularly attended to, keeping the shoots thin, and stopping them above a cluster of fruit, for if the plants are allowed to ramble and grow too freely, there will be a poor chance in an unfavourable season of securing a good crop. Shallots, if left in the ground after the bulbs are ripe, are apt to mildew and decay in wet weather; therefore they should be pulled as soon as the tops begin to decay, and should be spread out in an airy place to dry before storing them.

#### FRUIT GARDEN.

Every attention should be given to trained fruit trees. All wall trees, especially, should be gone over in time, and the shoots thinned and stopped to admit air and light among the fruit and young shoots, which will greatly assist the formation of fruit buds for the following season. Old Pear trees, in particular, that are unfruitful, should be subjected to this treatment. Keep Peach trees free from green fly, by means previously advised, and dust sulphur on shoots affected with mildew. Use the garden engine occasionally in warm weather, to clean the trees, and prevent red spider.

#### FLOWER GARDEN.

Remove everything in the way of bedding-out plants whose beauty may be over, or which are at all ineffective, and introduce good plants from pots in the reserve ground. A good reserve ground, if properly situated and systematically conducted, would be one of the most useful plots about a garden. Such a valuable adjunct as this would require the constant attendance of a man possessing some knowledge of flowers, and, therefore, could not be carried out where there is a scarcity of labourers. Decayed patches of bulbs which are required to stand for early spring flowering, may have Verbenas or other things introduced from pots between them, so as to give gaiety to the places they occupied. Propagation of stock for next season must soon receive consideration, so as to have strong well-established plants before winter, and without the necessity of keeping them so close and warm as to induce weakly and watery growth. It cannot be too often repeated, that to be able to winter bedding stock safely with ordinary care, the cuttings should be put in sufficiently early in the autumn to allow of having them well established, and fit to be exposed to the open air by the middle of September. Begin with such as are found to be the most tedious to propagate. Hollyhocks are general favourites, but they do not afford cuttings freely, and are in general not over-plentiful about most places. They should, therefore, be examined often in search of any cuttings which they may afford, as those rooted early will make strong plants for next season. Attend to the tying up of Hollyhocks and Dahlias, and go over the masses of Verbenas, &c., frequently, for the purpose of regulating the growth, so as to keep it orderly and neat. Keep Roses as free as possible from insects, and if time can be spared dead blooms should be removed from Rhododendrons. Let Carnations and Picotees be layered as soon as the shoots are in a proper state for that purpose. They make exceedingly useful border flowers, and are much prized in a cut state. See, therefore, that plenty of these are secured for next season. Pink pinks put in early will now be ready for transplanting, and if so, this should be done at once, as they will require time to fully establish themselves, so as to prevent frost from injuring them. If the situation ultimately intended for them is vacant they may be planted there at once, but if occupied at present with something else, let the young Pinks be planted 4 inches apart in reserved beds in an open situation; the soil should consist chiefly of light loam, to which may be added some charcoal dust or charred refuse. The rotten manure from an old Mushroom bed answers very well for Pinks, as it encourages a mass of fibres, and produces a healthy but not over-gross development of top. Cuttings of Roses, where they can be had, may now be taken off and planted in a close cool frame in a northern aspect. To about a month they will have shown a disposition to strike root, when they may be taken up carefully, potted, and plunged in a slight bottom heat. Treated in this way they make good plants in a short time, and if kept under slight protection during winter, will fill their pots with roots, and be ready for planting out next May.

#### GREENHOUSE AND CONSERVATORY.

The Camellias and Azaleas for early blooming will have set their buds, and should be removed to a sheltered, shady situation out of doors, for if kept in heat they will be apt to make a second growth, which must be avoided, as it prevents their

flowering so freely as would otherwise be the case. Give every possible attention to plants for autumn and early winter flowering, as *Liliums*, *Chrysanthemums*, *Salvia splendens*, *Globe Amaranths*, *Tree Carnations*, *Scarlet Pelargoniums*, *Cinerarias*, *Genetras*, *Egonias*, and *Euphorbias*. Let them have plenty of pot-room, rich compost, a moist atmosphere, and plenty of space for the perfect development of their foliage, regulating the temperature according to the nature of the plant, and they will make rapid progress. We have nothing, however, that surpasses the *Eperis*, the winter-blooming *Ericas*, and the *Cytisus*, and these should not be overlooked in the crowd of suitable plants. Attention must soon be paid to late-growing plants in borders, for while in active growth they require a good deal of water, and insects are more troublesome than in the case of plants at rest. Give *Luculias* plenty of water at the root, and occasionally supply clear liquid manure to old plants that may not be growing freely, until they have made sufficient wood to ensure a good display of flowers. Manure water, however, must not be given to young specimens in vigorous health, as in this case it would only induce too gross a growth—a condition in which they seldom flower profusely. In order to secure fine heads of bloom from this plant, it should be allowed a few weeks of comparative rest, after, say about the middle of next month, keeping the roots rather dry, and exposing the plants as freely to air as can be done without injury to the foliage, or the health of their neighbours.

## STOVE.

As plants will soon be ripening their young wood, they want as much light as possible, and even moderate sunshine. In the case of *Orchids* this is especially necessary, in order that the young leaves and pseudo-bulbs may be thoroughly ripened. Plants already in this condition, or nearly so, should be removed forthwith to a cool house, and care should be taken not to induce them to push again, as a fresh start would interfere with their flowering next year. *Dendrobium nobile*, and others of that class, sufficiently advanced in growth, should also be moved to a house where they can have a moderate and steady temperature, abundance of air, and little water till their stems are ripe and their flower buds formed. Those *Orchids* which are still in a growing state should be placed in the most favourable positions, and encouraged by heat to ripen and harden any growths which they may yet make. Afterwards let them be put gradually to rest.—W. KEANE.

## DOINGS OF THE LAST WEEK.

## KITCHEN GARDEN.

We were almost at our last shift from want of rain, though not despairing, when the frequent cooking of pheasants on the 16th told us that a thunderstorm was impending. Ere long we saw the lightning, and heard the thunder and the sweet rain, the latter falling gently, and though not enough to fill the pools, or even make an impression on them, as roads and fields were so dry, it was quite enough to moisten the soil. The effect was almost magical. Everything looked crisp and in full luxuriance on the next morning. Some good-sized Cauliflowers that appeared almost forbidding in their hardness, next morning seemed as if covered with some splendid glare, being so soft and pearly. Do what we may there is no watering like the cloud watering, and especially when the electric state of the atmosphere is in gentle disturbance, then every drop of rain brings enriching virtues with it. The accompanying cloud is another great advantage—there is no force sent to evaporate the moisture back before it has had time to reach the roots or distend the tissues.

The genial rain helped everywhere, but it was most perceptible in its effects where vegetables and Strawberries had previously had sewage water. We hoped the rain would come, and that made us anxious to water with the enriching fluid, and we would have applied it to many other crops if we could. Such watering would effect five times the amount of good that watering in a hot sunny day would do. We have sometimes been taken to task for watering in a dull cloudy day, even when there were symptoms of rain. We are so convinced that with a limited water supply the principle is right, that we wish to see the practice more prevalent. We have not a doubt but that in hot sunny weather many plants are watered out of existence.

Sowed Endive, Lettuce, Onions for salads, Turnips, Radishes, Peas, Dwarf Kidney Beans, and cleared off the last of Asparagus Kale, to make way for other crops.

*Asparagus*.—We have almost given up cutting this, so that it

may make good growth for next year. We shall now give a gentle setting, and if we can, we may give a little rotten dung, and even manure watering. Now is the time to encourage growth, so as to have the shoots strong and well ripened before the end of autumn. The banking up with manure in winter could do little good, except to keep frost from the beds, and though we have often had Asparagus near the surface, we have rarely found it injured by the most severe frost. Most people when they cease gathering Asparagus, cease caring for it until the next year's gathering time comes. They may rest assured that any mulching and manuring given now will not be thrown away.

*Gathering Peas* seems to be a simple matter, but there is a method in it. We have had fine rows next to spoiled by a careless gatherer, who pulled the pods so roughly as to injure the haulm and damage the roots. Young *Pea* pods are pretty as they glisten in a basket; but how differently they look when their pearly coating has been removed by a clammy perspiring hand. We know of no better method of gathering Peas than nipping the stalk of the pod with the point of a sharp knife, the stalk being held between the knife and thumb. We know of no other mode by which the gathering can be done so quickly, and done without the slightest strain on the haulm and roots. We have known cases where the produce was nearly doubled, when this was practised, as compared with the results of a snatching-and-tearing mode of gathering. What is worth doing, is worth doing well.

## FRUIT DEPARTMENT.

Owing to the dryness, with abundance of fruit we have had very little growth, so little indeed, that we have not yet had reason to nail-in Peach shoots on the open wall. New growth is proceeding more freely in the warm, moist, balmy air; as we could not syringe or engine, the rain was all the more refreshing to the trees, and has cleared them of the dust which kept blowing over the walls for some days previously. A good second or third thinning of fruit must now be given, as we shall have more breathing time, and then we shall leave a few to be removed after stoning.

In relation to watering fruit trees in pots, though mulched well on the surface, we have found one or two cases during the week confirmatory of our late insisting on the propriety of making sure that the earth below the mulching was wet. A Plum tree, a mass of fruit, threw off most of it in one day, and one beside it dropped a good many. The waterer would insist he had watered these like the others, but the soil beneath the mulching, which was damp on the surface, was as dry as dust. You cannot ring a pot as you pass, if it is plunged or mostly plunged in the soil, but it is no great matter to examine the soil with a pointed stick or with the finger. In practice it is not, however, so easy to get such a little matter attended to.

In the case of pots above ground on stages or shelves, many an anxious beginner would not require to put puzzling questions as to when and how often to water, if he would ask his pot plants how they are for moisture simply by ringing the pots—that is, striking them outside with the knuckles, or, if that would not do for fine fingers, using a knobstick in preference. If the sound emitted from the stroke is dull and heavy, then the soil inside is moist; if the sound is clear, resembling the ring from an empty sound earthenware vessel, then you may rest assured that the soil and roots are dry.

Some time ago an enthusiastic beginner asked us to look at a fine expensive plant, which he had not had long before the shoots began to droop, even though he watered it once or twice a day. The ring of the pot at once told the reason, but the owner looked incredulous in the matter, as much as to say, "How can that be? I water every day!" and was only convinced by turning up the soil, which at 3 inches from the surface was quite dry; the watering had gone no deeper. In this case, as the pot was large, we advised setting it in a tub of water, and allowing it to stand there a few minutes after the last air-bubble came up, and afterwards, when watering, to give enough to let the water come out at the bottom of the pot. The result was that the plant flourished.

Though we could not get a dish of Strawberries out of doors on the 14th, they have come in since, and all the better owing to the rain. Perhaps the cleanest fruit and best we have had this season were from plants pricked-out in autumn, taken up and potted, and placed in a mild hotbed in a frame, as lately described. They stood as closely as possible in the frame until the pots were full of roots, then they were raised out of the bed—that is, set on it, and ere long were set on shelves, and the fruit was thinned from five to eight in a pot. For filling

a gap the plan is good, and we can do with fewer plants potted in the autumn. As several times hinted at, we have no Strawberries that for cropping resemble those turned out of pots last season. We hope to turn out a good many presently, and would have had more out but for the difficulty of watering them.

Proceeded with watering in houses, thinning late Grapes, and we trust are long to have all extra plants out of fruit houses, as plants do little good after the roofs are covered with foliage.

# ORNAMENTAL DEPARTMENT.

Proceeded with potting, chiefly plants of a season, as Coleus, and Achimenes, and we shall have much potting Ferns, &c., as soon as we can get at them. The *Coleuses* are valuable for fill-gaps, where there is much space to go over, and little space for keeping, or growing. With very little bottom heat, they grow so freely and quickly, that a cutting soon comes to be a handsome plant. Some beginners may like to know that leaves and even parts of leaves of Coleus strike freely, form a sort of fleshy base, and then throw up shoots. Most are aware how the leaves of Gloxinia and the fine-foliated Begonias may be cut into strips, and every little strip forms a plant when inserted as a cutting. It is well at times to depart a little from general routine. In taking off the points of Coleus Verschoffii, thinking they might be wanted, a young man inserted them just as they were, without cutting to a joint, or removing or shortening a leaf, and in a week the pots were a mass of roots, and not a leaf had dampened. There are many things that have a firm stem that strike well without the trouble of cutting to a joint, as roots come freely from any part of the stem.

We have done the bulk of our bedding-out. We planted out some Coleus three weeks ago, but the plants do not look over-well. The bulk will go out about the 21st, or a day or two later. A little delay in their case is not time lost. We had rather they never lost their rich colour.

We shall also place a few patches of such annuals as Clarkias among some of our beds, as they tend to relieve the monotony of colour and are easily cut or removed when not wanted. The rain of the 16th has done all the plants good, and they seem to be going on well, though after watering when planted they never, or hardly ever, had water again. When we read directions about watering fresh-planted bedding plants daily, we can hardly help asking what those people are to do who cannot water if they would. We can hardly make such everyday waterers believe that such and such beds newly planted have had no water for ten days, and in scorching weather too. We know plants look fresher at the time when frequently watered, but we have great doubts about the propriety of this frequent drenching. At any rate, we know places where, by means of pipes laid on, it is easy to water every day, and water was thus given in all dry weather; and yet we have seen more massive and gorgeous beds where watering was refrained from for a fortnight, three weeks, or a month, and moisture secured chiefly by surface-stirring. It is easy to go to extremes, and it is quite possible where water is plentiful to use it too freely.—L. F.

# METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending June 21st.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Max.	Min.	1 ft.	2 ft.		
Wed. . 15	30.066	29.046	82	46	67	58	S.W.	.00
Thurs. . 16	29.965	29.790	87	58	67	58	S.	.50
Fri. . 17	29.948	29.805	77	45	64	59	S.W.	.00
Sat. . 18	30.068	29.970	75	47	61	58	S.W.	.00
Sun. . 19	30.145	30.169	84	59	62	58	S.W.	.00
Mon. . 20	30.217	30.167	82	46	65	59	W.	.00
Tues. . 21	30.256	30.175	80	59	65	59	N.	.00
Max. .	30.066	30.003	92.43	48.86	64.43	58.43	..	0.30

- 15.—Very dry; exceedingly fine; clear and fine.
- 16.—Fine; very fine and close; thunder, lightning, and rain.
- 17.—Densely overcast; cloudy but fine; clear and fine.
- 18.—Densely overcast; fine, cloudy; clear and fine.
- 19.—Very fine; exceedingly fine; clear and fine.
- 20.—Overcast; cloudy but fine; fine and very clear.
- 21.—Very fine; exceedingly fine; very hot; clear.

# TRADE CATALOGUE RECEIVED.

Ant. Roosen, Florist, Overveen, near Haarlem, Holland.—Catalogue of *Hyacinths*, *Tulips*, *Graues*, *Narcissus*, and other Dutch and *Cape Bulbs*.

# TO CORRESPONDENTS.

•• We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the Journal of Horticulture, &c.*, 171, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

CHARCOAL WATER (*Zwager*).—There is no such thing as charcoal water. Charcoal is totally insoluble in water. Powdered charcoal mixed with the soil about the roots of plants slowly forms carbonic acid, and is beneficial to them.

KILN DUST (H.P.).—What is this? Ashes from the fuel, or from sifting soil? It is fit for a manure to the Roses, it must be spread on the surface and ploughed in.

ISNENE AMANCARE (C. M. M.).—Is blooming is not rare. The plant has been exhibited at South Kensington, recently, more than once, and was interesting chiefly from a plant of another name being supposed to be identical with it, and from its appearance after being neglected for some years.

CLEMATIS JACKMAN'S TRAINING FOR A BED (F. S. H.).—For training this plant, a trellis of wire is the best. Wood lattice-work, however, will do, but it is more conspicuous. It ought to be fixed so that at the sides or edges of the bed it will be no higher than the grass or Box edging, and about 9 inches from 9 inches to 1 foot higher in the centre than at the sides, or rise from the latter to the former 1 foot in 3 feet.

ALLAMANDA NOT GROWING (*Allamanda*).—The plant, we should think, would again grow well if you were to cut it down to where it is starting from near the root; but if it has not started into growth by this time, it would be well to replace it by a young one. The cause of its present failure is no doubt the excessive flowering of last season.

ZONAL PELARGONIUM THOMAS SPEER (R. F. S.).—It is a very good sort for greenhouse or conservatory decoration—as you say, "a grand Scarlet Pelargonium." Of its bedding qualities we have no experience, but we question its surpassing Bayard for that purpose. We shall be obliged by a statement of your own experience of its bedding properties.

GOLDEN AND SILVER TRICOLOR PELARGONIUMS (*Mary*).—You do not say whether you require them for in-door or out-door culture. We presume the former, and recommend—*Golden Tricolors*: Lucy Grieve, Mrs. Donnet, Prince of Wales, Mrs. Turner, Mrs. Heady, and Sir Robert Napier; *Silvers*: Italia Unita, Mrs. Fox, and Mrs. Pratt; *Princess Eugenie*, *Nobel Morris*, *Charming Bride*, and *Glen Eyre Beauty*.

OBTAINING SHRUBBY PELARGONIUMS (*Centurion*).—The petals of the Pelargoniums were shed and faded, but seemed pretty. The best way to obtain good shrubby flowering Pelargoniums, is to turn them out when done blooming, keeping the pots moist at bottom, but not giving them too much water at the surface. Place them full in the sun, so as to ripen the wood. When the wood becomes hard, prune back according to taste, the more like so many dices the better. A few days afterwards give a little water, and when the bare shoots break report in smaller pots, and give larger pots as the heads grow. Keep the plants near the glass, and in a heat not below 45°.

SCORZONERA, SALSAFY, AND COTTAGE'S KALE CULTURE (*Northumbrian*).—*Scorzoneria* and *Salsify* should be sown at the beginning of April in rows a foot apart, and the plants thinned out, when they can well be laid hold of, to 4 inches from each other in the rows. They require no further care than to be kept free of weeds. Take the roots up in November, and store them in sand in a shed or cellar. The tops should be cut off to within about half an inch of the root. The roots are the eatable portion; boiled like Parsnips, and served with white sauce or melted butter they make a nice dish. *Cottagers' Kale* is sown about the same time as *Salsify*, or at the beginning of April; and from the middle of June to the middle of July the plants are planted out in an open situation in good rich soil, and at 2 feet apart every way. In Cauldweeds, the plants to be earthed-up when they are sufficiently grown. They will give you a quantity of delicious greens next winter and spring.

DESERT PEA (R. F. J.).—We are not certain, but we think that "Desert Pea" is a popular name of *Clinanthus Dampieri*. It belongs to the same natural order as the Pea, and is a native of desert districts of New Holland.

PEAS AND KIDNEY BEANS FOR LATE GATHERING (*A Constant Reader*).—For a late supply of Peas there is no equal to Ne Plus Ultra. We have gathered from it as late as December 21st, but of course the autumn was mild. We would advise you to sow now that kind and Princess Royal, both of which we put in on the 15th ult., and we shall supplement this sowing with one of Dickson's First and Best at the beginning of next month. Kidney Beans for late gathering should be sown at the beginning of July. We sown the last lot on the 15th of July, but we have a sowing made out on the 1st of July, and every fortnight to that from the end of April. Liver-coloured and Negro are the hardiest and best for out-door sowings. We have pods from the last two sowings until the plants are cut off by frost.

PEACHES AND NECTARINES (*A. D.*, *Isle of Man*).—The Peaches are mildewed. So when we said at page 429 of our last number, The Nectarines shrivel from want of a supply of sap, and the roots, probably, have descended into an ungenial subsoil. If so, you cannot lift them now. Try removing the surface soil, replacing it by some a little richer, and water with tepid, very weak, liquid manure.

**GRAPES WITHERING (W. J. C.).**—Cease from syringing, but give an abundant watering to the roots twice a week, and mulch over them if in an outside border.

**DISCONTINUING FIRE HEAT IN VINEY (T. S. Brown).**—The house being started on the 1st of February, and the Grapes Muscats, you will require fire heat some time longer—indeed fire heat will be needed until the Grapes are ripe, though you may discontinue the fire now if you can command a temperature of from 65° to 66° at night, and of 70° to 75° by day without sun. It is an advantage in the fire heat, for a little fire can be given at night when the Grapes are ripe, and in a dull weather. After the Grapes are ripe the temperature need not exceed 50° from fire heat, but you may need fire heat occasionally to drive off damp, but it should be given only at such year.

**ASTERS, PETUNIAS, &c. (A. Window Gardener).**—Your plants of the first, fourth, and last, raised from seed sown a month ago will bloom this year, but it will be late, and they must have early encouragement, and not very rich soil, with a warm situation, but abundance of air. The Petunias and Mimulus will probably not flower this season, but they will do so next year.

**FUCHSIA AND CALCEOLARIA NOT THRIVING (Idem).**—We advise you to repot the Fuchsia, and cut it in rather closely, but leaving some leaves. Do not keep the soil more than moist until the plant begins to make fresh shoots, then water more freely. It may flower again in autumn. The Calceolarias we would treat in the same way, and a gentle watering overhead on the evenings of hot days will greatly refresh the plants, and induce a more free growth; avoid soaking the soil with heavy frequent waterings.

**DAFFODIL TREATMENT (O. W. D.).**—It requires to be kept in a cool dry part of the greenhouse after the flowers are made, which they will be by the time, and in a position near the glass. It will need water to keep it from flagging. Throughout the winter it should have no more water than is necessary to keep the foliage fresh. When the buds begin to swell water in a moderate way, and if the temperature of 45° to 50°, all the better; give a slight sprinkling overhead night and morning until the flowers expand. After flowering repot if necessary, and continue the plant in a moist atmosphere, but with plenty of air so as to secure sturdy growth. Good drainage is necessary, and a pot rather small for the size of the plant. It is best to root rather than to pot in a compost of sandy peat, fibrous loam, and leaf soil in equal proportions, with a free admixture of silver sand, will grow it well.

**PEAR LEAVES BLISTERED (Idem).**—Your Pear leaves are blistered, as may be this season, from cold dry weather. There is no remedy, but we think your tree is in a bad state of health. We advise you to syringe it well every evening in bright weather up to September, and give a good watering every week in dry weather until the end of that month, every alternate watering to be of liquid manure. Do not keep the trees very closely pruned during summer, but rather encourage growth, and we think it will improve.

**AFFECT FOR A PROPAGATING HOUSE (Shirley).**—The aspect, N.E. by S., is very good for a propagating house. We should prefer it to the direct south, though even that, but as you say it is, we would not find fault with, as the glass could be shaded to keep out the heat.

**GARDEN MARIGOLD FOR BRIDING (Down).**—You are quite right. The garden Marigold when double, as yours is, is a fine flower, and we have frequently recommended it. We are surprised such flowers are so much neglected, and that they are refused the post of honour. In filling vases, &c., we should bring everything into requisition; but, then, some people object to that as common. Such plants are not fitted for dining and drawing-rooms.

**MILDEW ON TEA ROSES IN A GREENHOUSE (Amateur).**—Roses very seldom suffer from mildew from excess of water at the roots, though a close damp atmosphere will give rise to it. If your Tea Roses are planted out in the ground in borders in your greenhouse, daily watering with weak liquid manure is quite sufficient to account for their not being in a satisfactory condition; if in pots, they will stand much more watering, but even then daily watering would be almost sure to be prejudicial. As a golden rule, water thoroughly when requisite, and do not water again till the soil is nearly dry. Such constant watering as you describe is sure to injure the young sponges of the roots. If in pots, we should advise their being removed to a cold frame where they can have protection both from too much sun, and also too much cold at night. Let the pots be well top-dressed with decayed manure, and water them with the water of the top-dressing recommended by the Rev. S. R. Hole, in page 37 of his "Book about Roses," and be watered with plain soft water every three or four days. If planted out give them the same surface dressing, but only water once a week, and let the plants well root and bring under water once a week a small quantity of nitrophosphate of iron, about drachm one to three gallons of water, which will help to check the mildew which already exists. Give all the fresh air possible without draughts.

**FROGS IN A GARDEN (Loxer of Strawberry).**—We do not consider frogs so useful in a garden as our bright-eyed friend the toad. Still, where they can be kept, they would do us good. We never saw the toad with fruit; we have seen them make short work of small insects, insects, &c. We are rather surprised that you can keep them in this dry weather in your Strawberry beds. They thrive best and feed best in moist weather. In dry weather they would do us good by keeping elgins from Strawberry ground. In moist weather they would help, on the whole, to keep such molluscs at a distance. We should depend less on their help than on a sprinkling of soot and lime, and watering with manure or sewage water. When we have useful advice, we never sowed lime and soot over our Strawberry plants about the time they were setting their fruit, and that generally set all our soft-skinned enemies scurrying.

**COPING ON A HIGH WALL (C. T. H.).**—For your wall 40 feet in height, for Peach trees, we would have the coping just above the height of the trees, whatever that height may be. As you do not intend to cover in front, though we would approve of moveable glass sashes as a coping, yet as a protection, we would rather have the coping in the form of a wood, felt, or thatch—say from 2 to 4 feet in width. Few are aware of the protection a wide moveable coping gives to bloom on a wall. Iron brackets are the best supports for such a coping, which is to be removed as soon as danger from frost is over. Lowe's frame is a good one, very good, and contains most of the synonyms. It is larger than Moore's, but that, too, is very good.

**VARIOS (Amateur).**—The budded Plums and Pear trees doing so well, we would not cut back by any means, but we would nip out the points. Our advice is based on this consideration, that no great check will be given, and the base will be well furnished and ripened, whilst something like free growth should be maintained. We should do the same with Apple grafts growing freely, merely nipping out the terminal bud. As to stopping a Vine shoot, we cannot well say more than as alluded to at page 385, but if there is anything special in your case, and you give us the particulars, we will advise you to do as we think we can, we should see an extra lot of fruit, but though we cut off in bushes, we cannot get so much young growth as we would like. If your Vines make such strong growth, we would nip out the points of the shoots. We fear the insect is the green beetle, and there is no remedy but hunting for the insect, and killing it.

**WOODEN PATHWAY IN A GREENHOUSE (Dubious).**—We approve of your proposed wooden pathways. We have many 16 inches wide, and in pieces about 8 feet long. For that width we have stout cross-pieces, and five spars of the above length longitudinally. We prefer the spars to go lengthwise, instead of across, as being easier to step on. When you put the spars across long sleepers, there is a risk of the point of a shoe or slipper getting into the interstices. However, everyone to his own taste. Charring the sleepers will preserve them, and so would pitching them, but not tarring them. We do not think a solution of chloride of zinc to steep the spars would do any harm, but we would be satisfied with merely planing the spars. They will last many years without any preparation whatever. Exposed to wet and dryness, they last longest when not painted.

**GREENFLY—MEALY BUG—AMERICAN BLIGHT (W. G.).**—Dust the Gooseberry bushes attacked by green fly with Pooley's tobacco powder or Scotch snuff. Mealy bug may be subdued by frequent syringing with soap water, and the American blight by battering the Apple trees with water in which sulphur is dissolved. The green fly, if it is not killed by the above applications of the insects, they may be crushed on the ground. All the above applications may have to be repeated two or three times, or as often as the insects reappear.

**NAMES OF PLANTS (W. W.).**—*Phala muscosa*. (—).—We cannot name Rose. The others are *Passiflora racemosa*, *Abutilon megacalanthum*, and *Kennedyia monophylla*. (*J. E. P.*)—*Prostratum*, *Prostratum*, *Prostratum*, *Prostratum*. (*Sam.*)—10, *The Showberry*, *Symphoricarpos racemosa*; 11, *Elaeagnus latifolia*. (*J. English*)—1, *Lonicera Ledebourii*; 2, *Elaeagnus angustifolia*; 3, *Bambusa fortunei*; 4, *Spiraea prunifolia flore-plena*; 5, *Stachys lanata*; 6, *Orbanche minor*. (*Penny*)—*Periploca graeca*. (*T. G.*)—1, *Statice profusa*; 2, *Fuchsia foliosa*; 3, *Nitritaria coccinea*. (*J. H. S.*)—1, *Cistaceae Pyracantha*; 2, *Lycynia vesperina*; 3, *Silene ilicifolia*; 4, *Gallium palustre*. (*J. Smith*)—5, *Veronica spicata*; 6, *Leptodermis androsaceae*; 7, *Limnathes Douglasii*.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### RATIONAL POULTRY-KEEPING.—No. 4.

#### DISPOSAL OF SURPLUS STOCK.

It is well when extra stock is to be disposed of, that it should be turned to the best account. As a rule, those who can best afford (if any can), to be extravagant and careless on the subject, are the most careful. There are, nevertheless, some who, when they are spoken to, declare the whole thing to be a bother, and that they do not care what becomes of the drafts—sell them to anyone. This is not fair to the pursuit; such a one will say at Christmas that poultry is a very losing concern. He has not tried to make it otherwise.

Granted that your drafts are all deficient in quality, that some are deformed, some are bad in colour. They form those of which you would be ashamed if a connoisseur wished to see your yard; when on the table no one looks for points. But it is not wise to neglect to make them as good as you can. Fowls were sent as food, and it is a duty to provide as much food as possible—may, more, we say it is a duty to provide it as good as possible. The aim of everyone should be to calculate whether a little extra food will make a profitable return in the growth and fattening of the birds that are intended to be killed. Neither youth nor exercise is conducive to fat; but poultry, to be good, must be young, and as they do not suffer from emui, nor from spleen, nor from many other ills superior bipeds are heirs to, it is generally found that if they are deprived of their liberty and well supplied with good food, they put on flesh rapidly. We are not about to advise everyone to go through the routine of cramming, &c.; it is not necessary. At the same time we are not satisfied with those who say, "Oh! we catch them up and kill them; they do very well." A little extra food and a little painstaking will increase the amount of food the fowls afford, and will add to its delicacy. Only those who have seen it would believe the difference a week will make.

Fattening-coops are too well known to require any description here. They should be made of bars 1½ inch apart—sides, top, and bottom. They should be about 18 inches high. For the process we describe no trough is necessary; a flat projecting board, level with the bottom of the cage, is all that is required. On this the food should be placed; it should be ground oats or barley meal elaked with milk, and mixed to a



must have been the cause, as on the day of attack there was a keen east wind, and the sun was very hot, and I always find bees are more inclined to sting in such weather.

Now for driving bees out of one hive into another. I remember reading about it in the *Journal* some time ago, but cannot find the page now; and having a very weak swarm in one of Neighbour's hives with three supers, which my employer kindly brought me, I thought of the experiment of driving them. My first plan was to take off the top and supers, and close the super holes with the pieces of zinc sent with the hive for the purpose. I then, with the aid of a young man, endeavoured to drive the bees by means of a pipe of tobacco, unclasping the floor-board, turning the hive bottom upwards on the ground, and closing a common small hive on the top, but the bees would not stir. In the morning I replaced the hive and tried another plan, by driving the bees with tobacco at the entrance hole through the super holes to the top hive, as I thought, but it did not answer, and I am afraid it is easier said than done. Will any of the readers of the *Journal* advise me how to do it? for it is very annoying, after having a fine super from a common box hive, not to be able to get one now. I see no chance of the bees filling the hive, much less getting a super. I believe it was only a late cast that was put in the hive. I might say all this was done without a sting.

The box hive spoken of, I have found answer better than any I have yet tried. It is about a foot square, with two sliding doors to afford a view of the bees when working, and seven bars of wood let-in as joists of a floor, and made to take a bar of honey out at pleasure. There are four holes at the top, about an inch square, for the bees to go through to the super, and by placing a small straw hive over the super you can remove it at pleasure. I claim for it that it is the cheapest and most convenient hive in use, and it is the invention of a much-respected clergyman in Wales.—J. ELCOMB.

**EARLY SUPER.**—Seeing in "our *Journal*" the account of an "early super" being taken on June 4th, I thought it might be worth while recording that I took a super on the last day in May, and which super I had put on exactly fourteen days previously. The straw super and honey weigh just over 8 lbs. I put on an empty glass on taking off the straw super, and the glass is now full, and ready to take.—W. FARREN, Cambridge.

**SPURIOUS HONEY.**—A New York paper says that not one pound in ten of the honey sold in that city ever knew a bee!

**WATERPROOFING CLOTH.**—Place a sheet of thin gutta percha, procurable at any chemist's, between two pieces of calico, and then iron it with a flat iron hot enough to make the cohesion perfect; it is waterproof and light-proof too, and very easily made.—(*English Mechanic*.)

## OUR LETTER BOX.

**CHICKEN MANAGEMENT (Notice).**—You do not give us the dimensions of the house, but we do not wonder at chickens dying in confinement; it affords none of the elements of health, and they are not strong enough to make much use of garden refuse. They want the dust, grit, and animal life of liberty. We cannot expect to rear in confinement. We do not like your feeding. It is not good enough for chickens. We do not know what chicken grits are. We always feed ours on the best food. We give curd, chopped meat, chopped egg, bruised wheat, and bread and milk. We do not give whole corn, nor do we think chickens can profitably digest it. Our opinion is (it is not a general one) that a hen and chickens do no harm in a garden. A hen under a rip on a gravel path, and the chickens running among peas, potatoes, and beans, are sure to do well. We have found them great vermin-enters and disturbers. Put your survivors out and they will do well. If you cannot do so, then we advise you to put a barrowload of road grit in their house in the dry, to keep it always clean and fresh turned, and to feed as we have advised above.

**REMUNERATION FOR REARING TURKEYS (W. S.).**—You should have 4½d. per week for bringing-up the Turkeys, that would make each Turkey four months old cost 2s. At that age it is worth it. If hatched now they would be just fit for the barley stables by and by. In naming this sum we suppose you find everything. Arrangement about death must be separate, as the full amount is not paid for losses. In some places those only are paid for that are produced alive at the end of the stipulated time. At the above price the birds are to be kept not only in health but condition.

**COCK'S BEAK CURVED (J. M.).**—It is not a common malformation, and, like most other distortions, is not to be accounted for.

**WASHINGTON PIGEONS FOR EXHIBITION (H. Hargreave).**—Give them a pan of water in the sun, and they will wash themselves; or, failing that, wipe gently the outside of the feathers with a sponge, and afterwards put the birds in a basket in the sun.

**"FOUR HOURS AT TAUNTON"—ERRATUM.**—In my report of the Taunton Show there is a printer's error, which if not corrected may cause the archaeologists to smile. "By the persons it was called 'Fairs'." Not Taunton as printed. "I pronounced so still by the exhibitors, showing how a pronunciation will linger though the spelling may change."—WILKSHIRE RECTOR.

**TRANSFERRING BEES (Pater).**—The best mode of transferring stocks from straw to frame hives was described in our number published on the 22nd July last. Our experience of chloroform when applied to bees is by no means favourable, but we are unable to state whether it would or would not be injurious if thrown into the hives in the form of spray.

**BEES NOT SWARMING (Glass Hive).**—We cannot tell why your bees have not swarmed, but this we do know, that it is by no means an unprecedented occurrence. They may not swarm so early as usual, by driving all the bees of one stock into an empty hive during the middle of a fine day, and putting them on the old stance; then shift the second colony to a new position, and put the deserted hive in its place to be re-peopled by the returning bees.

**SWARM IN A HOOK (J. C. L.).**—The swarm is yours only in the event of its not being claimed by the owner. As its value depends upon its size, the earliness of the season when it issued and the usual price of swarms in your locality, it should therefore be appraised by some competent judge upon the spot. It requires a much more detailed description of the "square box" in which they have been detained, to enable us to state whether it is adapted for the occupation of bees or not.

**LIGURIANS (G. C. G.).**—If they are first swarms (May 31 and June 2) both may yet work super, but we should not expect a second swarm to do so. If, when a super is removed, the stock hive remains rather light, it is always easy to make up the deficiency by feeding.

**MOISTURE IN A HIVE (J. E. Bath).**—The internal moisture which you perceive condensed on the window of your wooden hive is at this time of no importance whatever, whilst ventilation would at this season be likely to do far more harm than good. We doubt whether either of the swarms will prosper this year, but you may try them with small ones, which will contain, say, about 8 lbs. each, and which may be put on at once.

**BEES IN ALTON HIVES (E. S. J. M.).**—It seems to us that both stocks have done, and are doing, very well, only one has refused to accept the additional space offered to it. The consequence of putting a drawer full of bees from No. 2 into No. 1 would probably be a large *swarm* coming in the mass of the intruders. The dirt substance at the edge of the drawer may be due to the wax-moth, and had better be cleared away.

**TO TEACH A JACKDAW TO TALK (Busticus).**—A Jackdaw does not require the tongue to be cut to enable it to talk; it is absurd to suppose that would make it do so. The Jackdaw is a mimicking bird, and may sometimes be taught, like the Starling, to say a few words.

## COVENT GARDEN MARKET.—JUNE 22.

A LARGE influx of goods has taken place during the week, and auction sales of foreign consignments are held three or four times a week. This procures a much larger number of buyers than would otherwise attend. Prices generally are lower, and bush fruit from Kent and other places will soon occupy a large portion of the stands. Strawberries are good in quality, but not over-plentiful. The Potato market is active, both for old and the new crops.

### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	sieve	0	6	0	Mulberries.....	quart	0	6	0
Apricots.....	doz.	2	0	6	Nectarines.....	doz.	0	15	0
Cherries.....	doz.	2	0	6	Oranges.....	doz.	103	4	10
Chestnuts.....	bushel	0	0	0	Peaches.....	doz.	10	0	25
Currants.....	sieve	0	0	0	Pears, kitchen.....	doz.	0	0	0
Blackcurrants.....	doz.	0	0	0	Pears, dessert.....	doz.	0	0	0
Figs.....	doz.	6	0	10	Pine Apples.....	lb.	4	0	8
Filberts.....	lb.	0	0	6	Plums.....	sieve	0	0	0
Gobs.....	lb.	0	0	6	Quinces.....	doz.	0	0	0
Gooseberries.....	quart	0	0	8	Raspberries.....	lb.	0	0	0
Grapes, Household.....	lb.	0	0	8	Strawberries.....	lb.	6	0	6
Lemons.....	doz.	8	10	0	Walnuts.....	bushel	10	16	0
Melons.....	each	8	0	0	do.....	doz.	100	1	0

### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	doz.	3	0	6	Leeks.....	bunch	0	4	0
Asparagus.....	per 100	9	0	0	Onions.....	doz.	0	15	0
Beans.....	doz.	1	0	0	Mushrooms.....	Pottle	2	0	0
Broad.....	bushel	6	0	0	Mustard & Cress.....	punnet	0	0	0
Beet, Red.....	doz.	1	0	0	Onions.....	bunch	0	0	0
Broccoli.....	doz.	1	0	6	Pickles.....	quart	0	0	0
Brussels Sprouts.....	sieve	0	0	0	Parley.....	sieve	0	0	0
Cabbages.....	doz.	0	0	0	Parsnips.....	doz.	0	0	0
Caulicuffs.....	doz.	0	0	0	Pea.....	quart	1	0	0
Carrots.....	bunch	4	0	8	Potatoes.....	bushel	3	0	0
Canterbury.....	doz.	2	0	0	Kidney.....	bushel	1	0	0
Celery.....	bunch	1	6	0	Radishes.....	bunch	1	0	0
Coleworts.....	doz.	0	0	0	Rhubarb.....	bushel	4	0	0
Cucumbers.....	each	0	0	6	Ricots.....	bushel	0	0	0
Endive.....	doz.	2	0	0	Sea-kale.....	basket	0	0	0
Fennel.....	bunch	0	0	0	Shallots.....	lb.	0	0	0
Garlic.....	doz.	0	0	0	Spinach.....	doz.	0	0	0
Herbs.....	bunch	0	0	0	Tomatoes.....	doz.	0	0	0
Horseradish.....	bushel	5	0	0	Turnips.....	bunch	6	0	0
					Vegetable Marrow.....	doz.	6	0	0

## POULTRY MARKET.—JUNE 22.

MARKETS are exceptional in very hot weather. A few fresh goods make large prices, and many of equal quality are spoiled.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls.....	4	0	4	6	Guinea Fowls.....	0	0	0	0
Smaller ditto.....	3	6	0	15	Pigeons.....	doz.	0	0	0
Chickens.....	6	0	0	0	Rabbits.....	1	4	1	5
Ducklings.....	0	0	6	10	Wild ditto.....	0	0	0	0
Geese.....	5	0	0	0	Hares.....	0	0	0	0
Turkeys.....	0	0	0	0	Partridges.....	6	0	0	0

## WEEKLY CALENDAR.

		JUNE 30—JULY 6, 1870.					Average Temperature near London.			Rain in last 49 years.		Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock of Sun.		Day of Year.	
Day of Month.	Day of Week.						Day.	Night.	Mean.	Days.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	Days.	m.	h.	m.	h.
30	Th	Alton (Staffordshire) Rose Show.					73.1	48.3	60.7	16	47	43	18	48	9	54	9	3	18	2	3	18	181		
1	F	Reigate Rose Show.					74.8	59.8	62.8	20	48	3	18	8	14	6	11	10	3	3	30	182			
2	S	3 SUNDAY AFTER TRINITY.					73.4	51.2	62.3	17	49	3	17	8	24	7	42	10	4	3	41	183			
3	SUN	Entomological Society's Meeting, 7 P.M.					74.0	50.2	62.1	19	50	3	17	8	41	8	8	11	5	2	52	184			
4	M	West of England Rose Show.					76.1	50.3	63.2	15	51	3	16	8	58	9	31	11	6	4	3	185			
5	Tu	Royal Botanic Society's Show opens.					77.1	51.2	63.7	17	52	3	16	8	15	11	64	11	7	4	14	186			
6	W						76.0	50.8	63.4	19	53	3	15	8		after.			10	4	24	187			

From observations taken near London during the last forty-three years, the average day temperature of the week is 74.9°, and its night temperature 50.0°. The greatest heat was 97°, on the 5th, 1852; and the lowest cold 34°, on the 30th, 1853. The greatest fall of rain was 1.15 inch.

## CYCLAMEN PERSICUM CULTURE.



OR utility, ease of culture, delicate perfume, elegant form, and varied colours and markings. *Cyclamen persicum* stands unrivalled amongst winter-flowering plants. The freedom with which its flowers are produced, and the length of time which they continue in all their beauty and freshness, are valuable qualities; the foliage, too, is very ornamental; in a collection of a few dozen plants the leaf markings present almost as much variety as the flowers.

Very different is the present system of cultivating this plant from that practised only a few years ago; two and even three years were then considered necessary for flowering, while now it is thought very slow work if we do not produce strong vigorous plants with thirty or forty flowers expanding within nine or ten months from the date of sowing the seed. "Sow the seed as soon as it is gathered," is the rule frequently laid down. This may be good advice for those who have plants, but to the beginner who knows nothing of the culture of this *Cyclamen*, simple though it is, such advice is not only puzzling but is likely to lead to error; for if he inquires when the seed is ripe, he is told in June or July, and if acting upon this information, he sows the seed in June, three months are lost, and no flowers obtained till the second winter after sowing.

The best time to sow the seed is early in March. The well-drained seed pans should be placed in a brisk moist temperature, and the soil kept damp. It is a good plan to paint with whitewash the glass under which these and other young and tender plants are being reared, as they are thereby rendered quite safe from the scorching effects of the sun's rays. As soon as the seedlings are large enough to handle they are potted singly in 3-inch pots in rich loamy soil, and kept growing briskly in the same lively moist temperature. They are shifted into 6-inch pots during the summer, and as winter approaches, if the plants have grown as freely as they ought to have done, they will be well furnished with foliage, and each crown will have a proportionate cluster of blossom buds, which will expand best in a cool house or window during winter. Those having scentless flowers, unless their markings are very good, should be discarded, and as some such are to be found in every batch of seedlings, it is well at first either to raise two or three times the quantity it is intended to keep, or to make annual sowings till enough good kinds be obtained.

As the flowers fade, the plants may be shaken out of the soil, repotted at once, and kept growing in heat, larger pots being given as required. An excellent and easy method of summer culture which I constantly follow is to prepare a bed in the open garden, not in a shaded position as is sometimes advised, but fully exposed to the sun. This bed is formed of equal parts of old hotbed manure, garden soil, and sand well mixed together. About the last week in April the plants are turned out of the pots, and planted in the bed at a foot or 18 inches apart,

according to their size; they are watered freely and constantly throughout the summer, and the soil around them occasionally stirred with a hoe, that being all the attention they require till the first week in October, when they are carefully lifted, potted, and placed either in a cool pit or in a house, and kept syringed and shaded for a week or two. When lifted from their summer quarters they are a dense compact mass of healthy foliage, and their crowns are bristling all over with flower buds, which, with a little care, afford a splendid display of bloom in the dull months of winter.

For the first bloom the most forward plants should be placed in a cool house, from which frost is excluded, in as light and airy a position as can be had, and the others, from which a few plants can be taken as required to maintain a constant succession of bloom, may be kept in a pit or frame, protected in severe weather, and preserved as free from damp as possible; for if any moisture effect a lodgement among the flower buds or at the base of the leaves, they will quickly decay. In potting, in order to obviate this evil as much as possible, the corms should be kept well up out of the soil. I know some advocate a deeper system of potting in order to secure roots from the sides of the corms, but from my own experience of the much greater liability of the plants to suffer from damp when thus potted, I would always advise that nothing but the base of the corm should be under the surface of the soil, every part of which will be quickly penetrated by crowds of roots, if the plant is as healthy as it ought to be.

It is a frequent matter of complaint with beginners in *Cyclamen* culture, that even if they do obtain a promising crop of flower buds, yet enough flowers will not expand at the same time to give the wished-for mass of bloom. The cause of this is the starvation system of feeding the plants so frequently adopted after the flower buds are formed. If the roots of a plant which have been revelling among the rich soil of the summer bed are put into the confined space of a flower pot, the nutriment of the soil contained therein is quickly consumed by the plant, and then a check is given, of which the evidence is visible in the weakly development of the flowers. When the roots of a *Cyclamen*, and in fact of all other gross-feeding plants just coming into flower, reach the sides of the pot, and are seen peering out of the hole at the bottom, it is high time that something better than clear water should be given; liquid manure is, therefore, constantly used after the plants have reached this stage, and with the most satisfactory results.

To reduce the foregoing remarks to the form of a few simple rules it is best to—

- 1, Sow the seed early in March in light rich soil, cover the seed thinly, and place the pans in a brisk moist temperature.
- 2, Prick-out all the healthy seedlings singly into 3-inch pots, keep the plants growing freely in the same temperature, shift them into 6-inch pots when the roots touch the sides of the small pots, and remove the plants to a cooler temperature in autumn.
- 3, As the plants commence to bloom in winter, feed

them with guano water, taking care to guard against the effects of damp on the foliage.

4. When the plants have done flowering, and the weather becomes mild and open, turn them out of the pots into a bed of rich free soil in a sunny part of the garden.

5. Never let the plants suffer from the effects of drought, but keep them constantly watered.

6. Take up, repot, and house the plants early in October.

To all caring for flowers in winter, and who have not yet included a few plants of this lovely *Cyclamen* in their collections, I would say, By all means grow some, for it possesses all the necessary qualifications to render it a general favourite; and when tended with the care which its usefulness and beauty should command, it continues to flourish for many years.—  
EDWARD LUCKHURST, *Egerton House Gardens, Kent.*

### PEACH FAILURES.

I SEE no reason, but the contrary, to alter my ideas, stated last summer, about Peach failures, and as the matter is ever new, and not without importance in the case of orchard houses, the following remarks are now added.

Last spring was notorious for continuous and heavy downfalls of rain while the Peach was in bloom. What more natural, then, than to ascribe the failure of the out-door crop to the purely mechanical cause of the pollen being washed away so that the fruit could not set, except where, from the aspect of the wall, from a deep coping, or from some sound and steady use of protectors, a crop was secured? The spring of this year has been very dry indeed, and we have, as far as I have seen, a very fair crop. Why, then, seek for causes of failure in unripe shoots (as if unripe wood could ever bear!), in cold, or damp, or in other such things? Dry cold does not hurt the Peach if the tree is sound. Who would deliberately syringe his Peach trees when they were in full bloom as violently as we do to shake off red spider? Seeing, then, that the aspect of the spring of this year helps to confirm my opinion, I still hold to it.

In the case of orchard-house trees, it is evident that some other causes of failure were to be sought; and these—so it seemed to me then, and does still, for a reason presently to be stated—were not doubtful. They were, first, the excessive overcropping practised by amateurs eager to secure substantial results for their first outlay, or by gardeners where a great demand was unexpectedly something to supply the owner's table. Besides this, there was the overcrowding of houses by amateurs desirous of obtaining something of every description, or by others when compelled to fill their orchard houses with reeking bedding plants, early crops, bulbs, shading vines; all producing a fatal and seething atmosphere, which glues the pollen of the Peach and prevents its dispersion. Of course, in various instances such causes of failure were not all simultaneously co-existent, and in others but little apparent. Still I thought then, and do so still, that to these, even more than to the unusually low temperature, was due the minimum crop of last year.

What confirms me in my opinion is this: I have been unavoidably absent during the whole of April, May, and part of June. The houses were left to servants who have been with me for years, and knew my ideas, being also guided by urgent written orders; but on my return I found the trees burdened by a prodigious crop, which has excited the admiration of visitors and the public in general, and been, I hear, considered about what such petted favourites of mine should produce every fair year. Nothing, indeed, remarkable, even after the very heavy—so, ignorantly I thought—crop of last year, when about 60 lbs by 15 produced 2000 fine fruit, 1500 being well sold in Covent Garden. But this year there were about 4000 left, being rather a nice crop! At this time some of the Peaches were nearly 2 inches long, and had to be torn down at that size, being often at about 3 inches interval. Joined to this, there was a forest of gross shoots from the standard border trees (for the cordons are not addicted to such rampant luxuriance), excluding sun and air. These had to be shortened as we trim a hedge, not with the delicate hand-pruning required for orchard houses. Now, if popular opinion is that orchard-house trees should bear "by the peck," and that less is a waste of time and money, then I am entirely of a different mind. My private judgment is that two seasons of such overcropping and neglect of pinning would ruin for ever any orchard house. The trees must be enfeebled by the excessive demand on their vitality; even this tardy thinning barely

rescues them. As to the quality of the fruit, that is what the popular mind least thinks of.

As regards what a tree will do—say for ten seasons running, let us take Early York. Well, to have well-coloured Peaches of 8½ inches in circumference, you must have a vigorous tree, well pruned and tended, so that the fruit may be at 9 inches interval, and but few at 20 inches from the soil. But think what a fair standard or a long 25-feet cordon with 2 feet width will produce at this rate. You must remove, in general, nearly two-thirds of the crop to reach this—that is, if your tree has set its blooms properly, otherwise no colour; and anyone who has sold for years at Covent Garden before, and door fruit comes in, knows what a test this is, and that without large, well-coloured, and rich-looking fruit, little profit can be made. In short, it must be fit for any table or occasion. Two seasons of overcropping, as I said, and adieu to all future chance. The trees become enfeebled, and an unusually low temperature during the blooming season is too trying for them. With well-watered spring crops in the borders, and thriving bedding plants everywhere, so as to produce a stagnant night atmosphere, there is little hope for the Peach. Vines are also much out of place; one would really think that there was too much sun heat in our climate.

On this head of climate let me here say, that after three weeks of a tropical sun at Oxford, on returning here I found the temperature nearly 20° lower, and could not help thinking how much they who ascribe so many advantages to the Channel Islands are mistaken, and how they underestimate our difficulties in fruit culture. The fact is, we gain during the nights by the equable temperature, which allows of our giving air freely, and causes little check; but, then, we must be on our guard against sudden squalls of wind. I think I could manage an orchard house in the neighbourhood of Oxford, with quite as good results as here. While in London I found greater than in Guernsey, a bright sun and a pure light breeze ventilating perfectly the orchard houses, of the details of which I made copious notes, and which I much liked, as well as Mr. Barron, their clever superintendent. It would be a pity if they were not well kept up, as at present, and I recommend visitors to see them.—TH. C. BÉHAUT.

### COPROSMA BAUERIANA VARIEGATA.

It may be asked by many, "What shall we add to our stock of bedding-out plants for next year? I reply, *Coprosma Baueriana variegata* if you wish for a bushy, compact plant, with moderate-sized, glossy, ovate leaves, green in the centre, and having a broad white marginal variegation, which in the young state of the leaf is creamy yellow. It withstands rain, sun, and drought better than many of the silver-margined *Pelargoniums*, and besides being very handsome it is much harder than many bedding-out plants. It will, no doubt, prove almost, if not quite, hardy; at least, it may be wintered with as little care and as easily as *Calceolarias*. I have no doubt it may be wintered safely in a cold pit with mats over the lights in severe weather. It is very ornamental either for bedding or as a pot plant for the greenhouse, easy of propagation and culture, and succeeds under the same conditions as *Zonal Pelargoniums*.

From what I saw of the *Coprosma* as a bedding plant last season, I can recommend it to those who have not yet added it to their collections, and those who have grown it will bear out my remarks. It attains a height of 10 or 12 inches, and is as much in diameter, is not straggling, and keeps its foliage well, needing no training beyond taking out the point, of a few irregular shoots. In order to have good bushy plants stopping must be commenced early. A plant struck in August or September should have its point taken out at the second or third joint. This will cause it to branch close to the ground, and as from four to half a dozen shoots will result from the stopping, the number of fourth pair of leaves. The second stopping is quite sufficient for forming a neat, compact plant, the plant itself being naturally compact-growing.

This *Coprosma* may be used in the flower garden any time after the middle of May, and for the same purposes as the silver-margined *Pelargoniums* and other white-variegated bedding plants. It is seen to advantage as a centre to a bed, having a broad band of *Iresine Lindeni* round it, edged with *Echeveria secunda glauca*.

Cuttings having two joints and the growing point will strike

freely. They may be taken off at all times, but August, September, and March are the best months. Remove the lowest pair of leaves after cutting below the lowest joint, and insert the cuttings singly in small pots, or about an inch apart round the sides of a larger pot, putting them in up to the next joint. Drain the pots well, and use a compost of two parts fibrous sandy loam, one part leaf soil, one part peat, and one part silver sand, the whole well mixed, surfacing with about half an inch of silver sand. Place the cuttings in a hotbed, and they will strike in a fortnight or three weeks; or if placed in a cold frame at the end of summer they will root quite as safely, though they will be longer in doing so. Pot off singly, or transfer to larger pots, and winter in a house or pit from which frost is excluded. Cuttings inserted in spring will, of course, require heat. All the plants require in spring is potting, stopping, and to be grown so as to form good plants before planting out. They ought, of course, to be well hardened off before planting out at the end of May or early in June.—G. ABBEY.

### GROWING CELERY IN BEDS.

Growing Celery in beds is, as Mr. Robson remarks, not new, but how seldom do we see it practised. I believe if it were given a fair trial this system would become more general for the main crop. I myself first practised it eleven years ago when at Trentham. I there for four years saw it did well with ordinary treatment, and since then I have never seen nor had the opportunity of growing Celery in this way, till I came here three years ago. I had such good faith in the practice, that I planted the whole of my main crop as described by me at page 399, vol. xvii. I have done the same in the present year, with the exception of planting both trenches with four rows. The family being less this year I do not require so much, and I was rather short of plants at planting-out time. I am certain as good Celery may be grown five rows in a bed as three or four. As Mr. Robson says, the earthing-up is the objection lodged against the bed system, and yet it is as simple as for the single or double row. My men were all asking the first summer how it was to be done, yet when they came to do it it was astonishing how quickly they did the work.—STEPHEN CASTLE, *The Gardens, Bent Hill, Prestwich.*

### NEPETA VIOLACEA AND TRACHELIUM CÆRULEUM.

AFTER the present rage for delicate bedding plants shall have run its course, and the much-shorter-lived popularity of what is called subtropical gardening shall have received a check from an adverse season or two, it will be discovered, perhaps, that there is, after all, some beauty in our present much-deplored hardy herbaceous plants, and they may have their turn again. Attempts, it is true, are now and then made to revive a taste for these useful auxiliaries to any flower garden, and there is little doubt that showy hardy plants will be more cultivated in future, and new additions made. The popularity of *Viola cornuta* is but the forerunner of that of other beauties of a hardy class; *Spirea japonica*, which I have grown to some extent for the last twenty years, has, I find, come out under another name, and assumed a higher position than before; while perhaps the most admired plant in all flower gardens for the past three months or more, and up to the present time (the middle of June), has been a hardy plant, the Golden Feather of the day, a *Pyrethrum*, which for spring and early summer is certainly without a rival in its way. Other plants, as *Cerastium*, are also indispensable to most arrangements, and the number of such plants is yearly increasing.

The plant whose claims to attention it is my purpose to advocate is an old acquaintance, *NEPETA VIOLACEA*, a hardy plant with lovely bluish-violet flowers, and of a spreading habit like a Verbena. I am not certain whether it is a variety of *N. chamaedrifolia* or a distinct species, but it certainly has a flower of a much darker blue, and no plant can be more hardy or accommodating. I do not think we have lost a plant since we had it, either from the weather or any other cause, and its propagation is so easy that we took off a quantity of cuttings in March from out-door plants that had not had the least protection or assistance, and they were struck and planted out in some ribbon borders, where the plants are spreading and flowering now as well as those of greater age. Young plants produce a greater succession of flower spikes than older ones where these are much crowded. I expect they will continue to flower for a long

time, and as the plant requires no attention, no tying up, no pegging down, it commends itself to all who have not the means to attend to plants requiring more labour. Although it may not claim a place amongst Pelargoniums and plants whose appearance late in September is of more consequence than now, it forms an excellent boundary for a shrubbery, its wide-spreading branches will effectively conceal the withered foliage of spring hedges or similar plants that may stand in front of it, and viewed from a distance nothing can look more compact. From what I have seen of it here and elsewhere, I should think it is likely to do best where there is an abundance of lime in the soil, and not so well where peat prevails, and I rather imagine the colour of its flower is a more decided blue in such a position, although the reverse is the case with *Lobelia speciosa*. Of this, however, I speak with some diffidence.

Differing widely in habit from this *Nepeta*, and also in the character of its flower and time of flowering, though not so much in the colour of its bloom, is *TRACHELIUM CÆRULEUM*, also an herbaceous plant of upright growth, producing a profusion of corymbs about 2½ feet high. This plant, however, is not so hardy as the *Nepeta*, but it produces seed in the greatest abundance, and this, if sown in the ordinary way in fine soil in March, will produce plants that will bloom the same season; so there is no trouble in propagating it. Cuttings or rather slips put in about September in a cold pit strike freely, and might remain there all the winter, be planted out in spring, and will do well. The plant often stands the winter when the weather has not been severe. Thus its culture is not difficult, and I believe it is one of the best to withstand dry weather, a property which now and then is serviceable—for instance in 1868, and possibly it may be so in 1870.

This is one of the plants I would recommend to those who think seriously of decreasing the number of their tender bedding plants, and substituting others harder and more easily propagated. In general its flowers are of a pretty lavender colour, but now and then a good blue will present itself, and not unfrequently white, but I do not approve of the latter. Attention in selecting seed from the best-coloured flowers would no doubt result in the best purple being obtained; but as it is, the colour of the flowers, as well as their form and the profusion in which they are produced, renders it a favourite with all who have seen it, and I have every confidence in recommending it.—J. ROSSON.

### ARCHIMEDEAN LAWN MOWER.

MANY thanks have been published which tend to disparage the above machine, and as I have had one in constant use for the last three months, I wish to say a few words on the subject. I have always used Green's lawn mower, and have been satisfied with it, but I have almost discarded it in favour of the Archimedeian. I approve of the Archimedeian for the following reasons:—First, that it will do more work, and do it with far greater ease, than any other that I have seen. Mine is a 14-inch machine, and one man can cut as much ground, and with less fatigue, as two men can with Green's 16-inch mower. Secondly, it will cut any length of grass with ease. Thirdly, it will cut perfectly when the grass is wet. Fourthly, it will cut slopes, and many places where I cannot use Green's.

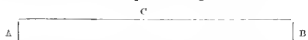
Now, with regard to the untidiness caused by the grass being left on the ground, no one could be more prejudiced against the machine than I was on this account, and as I am very particular about my lawn, I would not use one for some time. I must confess that I have been surprised at the actual result; the cut grass is not to be seen in a few hours after it is cut; and as a lad can work my 14-inch machine with ease, there is no excuse for the grass not being kept in such close trim as to present any untidiness whatever on this account. After a complete experience, I have no hesitation in saying that the Archimedeian is superior to any machine I have seen. The fault of our English machines lies in having rollers in front of the knives, they press down the tough bents of grass, and the knives pass over them without cutting many of them, whereas the Archimedeian cuts the grass as it stands.—D. A., *Norfolk.*

ENGLISH AND SPANISH IRISES.—At the present period of the year no flowers are more brilliant or more varied in colour than these, and we never saw more effective specimens than those just sent to me by Messrs. Barr & Sugden, of King Street, Covent Garden. The Spanish Iris is the *Iris xiphoides* of botanists, and the English Iris *I. xiphoides*. We are asked,

"Why these names were applied?" The Spanish Iris was called *Xiphium angustifolium* by Tournefort, and the English Iris was called *xiphioides*, because it is like that *Xiphium*. Both are natives of Spain, and the "English" Iris was so called by the Dutch bulb-growers, who first obtained it from England.

### GALVANISING PLANTS.

I saw the other day in a gentleman's garden a contrivance to get an electric current to pass along a bed thus:—



A was a zinc plate, B a coil of copper, and C a copper wire running on the top of the bed, and joining A and B. A and B are buried. It was supposed to encourage the growth of the plants, and certainly some plants of Hollyhocks looked very fine. Can you tell me if the supposition is correct?—A. DOWNES.

[A series of experiments conducted by Professor Solly in the garden of the Royal Horticultural Society led some persons to the conclusion that electricity has no influence over plants, but we have strong doubts as to the soundness of the conclusion. At all events Sir H. Davy has left this record:—"I found that corn sprouted much more rapidly in water positively electrified by the voltaic instrument than in water negatively electrified; and experiments made upon the atmosphere show that clouds are usually negative; and as when a cloud is in one state of electricity the surface of the earth beneath is brought into the opposite state, it is probable that in common cases the surface of the earth is positive." Many other chemists have made experiments. Bequerel found that seeds germinate quicker and more vigorously when in contact with the copper plate than when in contact with the zinc plate of a voltaic battery. It is also found that the leaves of the Sensitive Plant, *Mimosa pudica*, close when a galvanic current is passed through the branches. Other chemists have shown that the stalk end of the Apple and Pear is positively electric, and the eye end negatively electric; but in the Peach, Apricot, and Plum these electric states are reversed. The authorities who consider electricity beneficial to plants are detailed in the first volume of the "Royal Horticultural Society's Journal," by Prof. Solly, who finally concluded that his experiments were opposed to the idea that "free electricity has much influence" over plants. The gentleman you refer to should have had one row of Hollyhocks ungalvanised and one row galvanised by the zinc and copper arrangement. This would have afforded a test.—Eds.]

### EFFECTS OF TRANSPLANTING A TREE AT REST.

I AM in doubt about the following question. Can a wood bud be transformed into a bloom bud by lifting the tree in the period of rest? A transplanted tree blooms more freely than a similar tree undisturbed, and the inference is that from amputation of roots in transplantation the wood buds have not a supply of sap sufficient to make leaves, and so make petals, which I understand are merely leaves in a feebler form.—C. C. E.

["Can a wood bud be transformed into a bloom bud by lifting the tree in the period of rest?" We answer, No. No merely mechanical operation, such as the lifting or root-pruning of the plant, without natural influences and natural agencies, can tend to its further advancement or development. There is no transformation. We may, however, arrest or check development, and this we do by transplanting.

Bloom buds are parts far more highly developed than wood buds; we may, indeed, call them fully-developed wood buds. For their production are required the influences of far more intense agencies—a greater degree of light, and a greater degree of heat.

According as the tree is influenced during its period of growth, so will the bloom or wood buds be the following year, and every part is formed and settled before the period of rest, as it is called, arrives. The parts being formed, then, it is impossible that they can be transformed, or that development can still proceed while the plant is at rest, or that any mechanical agency can cause it. Your theory that "a transplanted tree blooms more freely than a similar one undisturbed" is only true with respect to its existence after a season's growth.

The action is this: In transplanting a tree we injure and destroy a good many of the roots, and thus lessen its sources of supply; less sap is passed up into the tree, and less foliage is produced. The sap, therefore, by being less in quantity, is more influenced by the season, is more highly developed, and bloom buds are formed where otherwise, if the sap had been more abundant, wood buds only would have been. The tree may be called weaker, but only in so far as the production of woody matter is concerned. This condition of the transplanted tree, however, is only caused through the natural influences of the succeeding season.

It is a well-known fact amongst gardeners that only well-ripened wood will produce fruit, as, for example, in Vines. It is also well known, and we have ourselves proved it over and over again, that to root-prune a tree severely, or to transplant, or to pot a Vine or a Strawberry, not only will not transform wood buds into bloom buds, but will very frequently destroy what might have been bloom buds. We have transplanted many hundreds of trees, and in no case have the bloom buds been in any way increased until the following season.—B.]

### KITCHEN-GARDEN CROPPING—STRAWBERRY AND BROCCOLI PLANTING.

MR. GILBERT says at page 420 of "our Journal," "I never let Strawberries stand longer than two years." Does he mean to say they will not produce any fruit worth speaking of after that time, or does he mean not fit for exhibition purposes? Surely Mr. Gilbert's soil is very light and poor if the former is the case. His practice is quite the opposite of that which I recommend to my friends here; and after they had read Mr. Gilbert's remarks they asked me if I thought they were going to bury cartloads of manure in order to make a Strawberry bed that would only last two years. I have always considered, if the ground is well prepared and has any "heart," that Strawberry plants will produce a fine crop of fruit in the fourth year, and even in the fifth with good management. In proof of what I say I intend sending to the meeting at Kensington on the 29th inst. some plants of Keen's Seedling which I forced in March, 1867, and then planted out, and they produced a second crop, but small, the same season. If Mr. Gilbert be there he will see the plants with the berries on; the latter may be small, as the best are overripe now, and we shall be obliged to pick them.

I hope to try Mr. Gilbert's mode of planting Broccoli. As the soil is light and much more rain falls here than in many parts of England, I have no doubt I shall be able to save more Broccoli through the winter than I have done of late. Not being able to get my Strawberries in at time—by the first week in July—until the last two hot summers, I have been obliged to adopt quite a different plan. Not having an over-large kitchen garden, I plant early Potatoes in rows 2½ feet apart, and do not earth them up, and plant the Broccoli between the Potatoes. As soon as the Broccoli begins to grow the Potatoes are generally ripe enough to dig up. Broccoli is succeeded in the following season by Peas in rows 3 feet apart, with Celery between the Peas. The Peas afford shade to the Celery. By planting such Broccoli as Imperial Winter, Late May, &c., it comes off in good time for successions of Peas.—T. ELCOME.

MR. RICHARD STAINS.—The death of Mr. Richard Stains removed from our midst another of those floricultural worthies that so largely helped to make the past of floriculture famous; while to some of them, and notably to Mr. Stains, it was given that they should be valuable helpers in aiding its present development.

For many years he was a cultivator and exhibitor of florists' flowers; but during the latter years of his life, owing to the claims of business, &c., he had almost entirely, if not quite, abandoned their culture. He was a firm friend and constant supporter of the once National Floricultural Society, he was an active member of the Committee of Management on its formation in 1851, and was the treasurer of the Society in 1859, on the occasion of its dissolution. For many years also he was one of the judges at the exhibitions of the Royal Botanic Society in the Regent's Park, and at the time of his being stricken down with paralysis in 1865 a member of the Floral Committee of the Royal Horticultural Society. His genial character and open-handed hospitality were known to all who came in contact with him; and it was painful indeed to many of his old friends and associates to know that, though living, he

was both mentally and physically incapacitated from acting with them, or taking any cognisance of those pursuits that formerly afforded him so much pleasure. Mr. Stains died in the King's Road, Chelsea, in the early days of the month of April.—(*The Gardener*.)

## CRYSTAL PALACE ROSE SHOW.

JUNE 25TH.

DROUGHT and hot sun are great enemies to the Rose, and both have been long felt in most parts of the country—the one is most prejudicial to the plant, and both are destructive to the beauty of its bloom; but on Friday last, the day preceding the show, a new element—at least it came as a novelty, we have seen so little of it lately—was introduced, and heavy showers fell near London, which must have seriously interfered with the metropolitan growers by spoiling blooms which the sun had spared. Fortunately many of the exhibitors had cut their trusses before the rain came, and others, fortunately for their Roses, but less so for other things, had no rain. Notwithstanding all drawbacks, therefore, the exhibition at the Crystal Palace was most excellent both in quantity and quality, and, as usual, very numerously attended, the visitors amounting to upwards of 15,000. The number of entries was very large, for the stands filled the greater part of the nave on each side of the transept as far as the late Tropical Department, the remnant of which is now added to the nave by the removal of the division.

The nurserymen's class for seventy-two single trusses comes first in order, and in this Mr. B. R. Cant, of Colchester, took the highest position with fine examples of Prince Humbert, Madame Pullet, Prince Camille de Rohan, Alfred Colomb, Marguerite de St. Amand, John Hopper, Marie Baumann, Victor Verdier, Souvenir d'Elise, Florin, Edouard Morren, Xavier Olibo, Senateur Vaise, General Jacqueminot, Gloire de Vitry, Cloth of Gold, Jules Margottin, Nardy Feres, Baroness de Rothschild, Madame de Brabant, Camille Bernardin, Edouard George Paul, Madame Viot, Madame Bireux, Duke of Edinburgh, Dupuy-Jamain, Madame Clemence Joigneux, Madame Noman, very beautiful, pure white; La France, Madame Victor Verdier, and Exposition de Brie. Messrs. Paul & Son, who were second, had, among others, fine trusses of Mlle. Marie Rady, Madame V. Verdier, Marguerite de St. Amand, Camille Bernardin, Edouard Morren, Antoine Ducher, Madame Caillat, Alfred Colomb, Prince de Portia, Léopold Premier, Léopold Hansburg, Mlle. Th. rose Levat, Madame Crapet, Prince Humbert, and Baroness de Rothschild. Mr. Cranston, King's Acre, Hereford, was third, and Mr. Keynes, Salisbury, fourth.

Class 2, forty-eight varieties, three trusses of each, is always a very effective class from the masses of different colours, and is a great trial of strength. In this Messrs. Paul & Son were first with splendid trusses of Senateur Vaise, Monsieur Boncenne, Comtesse de Chabillant, Duchesse de Morry, Thoin, Mlle. Marie Rady, François Louvat, Marguerite de St. Amand, Madame Caillat, Madame Crapet, Alfred Colomb, Madame Furbat, Marie Baumann, Victor Verdier, Baroness de Rothschild, Abel Grand, Maurice Bernardin, Camille Bernardin, and Pierre Nottin. Mr. Turner, of Slough, was second with fine trusses of La France, Marie Baumann, Lafayette, Prince Camille de Rohan, Xavier Olibo, Impératrice Eugénie, white, John Hopper, Baroness de Rothschild, Miss Ingram, Alfred Colomb, and Prince de Portia. Next came Mr. J. Fraser, of Lea Bridge, and fourth Mr. Cranston.

For three trusses of twenty-four varieties Mr. Cant was, as for seventy-two singles, first with a splendid lot, the most noticeable of which were Baroness de Rothschild (this name, so well known, seems to be ill-fated as regards spelling: one exhibitor gave it its full name Madame la Baronne de Rothschild—much too long for English modes of speech—another Bar-ness de Rothschild, which will be new to French ears; and a third La Baron, thus making the name of the epicure gender). Alfred Colomb, Dr. Andry, Antoine Ducher, Madame Vidot, Victor Verdier, Madame Charles Wood, Marie Baumann, Devoniensis, Senateur Vaise, Edouard Morren, Princess Mary of Cambridge, Duc de Wellington, Marguerite de St. Amand, John Hopper, Mlle. Marie Rady, Horace Vernet, Xavier Olibo, and Comtesse de Chabillant. Mr. Cranston was second, and Mr. Perkins, of Coventry, fourth, the third prize being withheld.

For twenty-four varieties, single trusses, in which class it was stated in the schedule, exhibitors in the preceding classes (1, 2, 3), were not to compete, the first prize was awarded to Mr. Cant for excellent trusses of Marie Baumann, Baroness de Rothschild, Devoniensis, Charles Lefebvre, Mlle. Annie Wood, Marchal Niel, Xavier Olibo, Prince Humbert, Prince Camille de Rohan, Anna de Diebach, and others. The other prizes went to Messrs. Perkins, Mr. Parker, Ragby, and Mr. Coppin, Shirley, Croydon.

The amateurs' classes were, on the whole, excellent, exhibiting a great improvement as compared with previous years. The stands shown by the Rev. E. N. Pochin, Silsby Vicarage, Loughborough, not in one but in several classes, excited general admiration, and they well deserved it, for every one of them was at near perfection as could well be conceived. Though matched against veteran growers, themselves with splendid stands, he was first for single trusses of thirty-six, twenty-four, and twelve varieties.

A very fine forty-eight, from Mr. Ingle, gardener to Mrs. Roand,

Birch Hall, Colchester, took the first honors in the class for forty-eight trusses; the following being particularly good—viz., Charles Lefebvre, Gloire de Saintenay, Madame Julie Daran, Souvenir de Monsieur Boll, Duchesse de Caylus, Henri Lelochaux, Beauty of Waltham, Marie Baumann, Marguerite de St. Amand, Duc de Rohan, splendit; Vicomtesse de Vézins, Baroness de Rothschild, Mlle. Annie Wood, Thyra Hammerick, Madame Charles Wood, John Hopper, Alfred Colomb, and Madame Furbat. The other prizes went to Mr. C. J. Perry, Castle Bromwich; Mr. H. B. Postens, Brentwood; Mr. T. H. Lupton, Stamford; Mr. H. Keen, gardener to J. G. Shepperd, Esq., Wickham Market.

For thirty-six single trusses, as already remarked, the Rev. E. N. Pochin was first with very fine and extremely fresh examples of Madame Clemence Joigneux, Madame V. Verdier, Senateur Vaise, Madame C. Wood, Madame Fillion, Monsieur Boncenne, Duc de Caylus, Jules Margottin, Alfred Colomb, François Louvat, Madame Knorr, La Esmeralda, Prince Camille de Rohan, John Hopper, Dr. Andry, and Duc de Rohan. Mr. Draycott, gardener to T. P. Faet, Esq., M.P., Hamberstone, Leicester, came second with, among others, Mar-hal Niel, we believe the finest in the show, though this beautiful variety was in most stands and everywhere good; La France, Marguerite de St. Amand, Mlle. Marie Rady, Félix Goussier, Charles Lefebvre, Duchesse de Caylus, and others exhibited in the first-prize stand. The other prizes went to Mr. Ingle, Mr. Dobree, Mr. R. Baker, and Mr. C. J. Perry.

Mr. Pochin's twenty-four single trusses, of which every one was most excellent, included a splendid Marchal Niel, and beautiful examples of Victor Verdier, Leopold Hansburg, Dr. Andry, Comtesse de Chabillant, Alfred Colomb, Comtesse de Paris, Monsieur Boncenne, Souvenir de Malmaison, Mlle. Marie Rady, Xavier Olibo, Louise Peyronnet, John Hopper, and Duc de Caylus. Mr. Draycott, who was second, had likewise very excellent trusses. The other prizetakers were Mr. Wallis, Mr. Dobree, and Mr. Johnson, of Chichester.

Stand of twelve single trusses were very good, but that from Mr. Pochin distanced all competitors. It contained lovely specimens of Dr. Andry, La France, François Louvat, Victor Verdier, Charles Lefebvre, Abel Grand, Alfred Colomb, Souvenir de Malmaison, Marchal Niel, and Madame Fillion. Messrs. Soder, Finch, and L'Queuall also exhibited excellent stands. A fine collection of cut Roses came from Messrs. Paul & Son, including a box of Baroness de Rothschild, Duke of Edinburgh, Comtesse de Chabillant, and many others. Mr. Parker, of Victoria Nursery, Ragby, and Mr. Keynes, Salisbury, also exhibited collections.

A few miscellaneous subjects were shown, and first-class certificates were given to T. Lutton, Esq., Stamford, for seedling Rose Princess Louise; and to Mr. C. J. Perry for Verbenas John Laing and Mrs. George Prince.

Mr. Wilkinson had the opera room set round with Palms and other tropical plants, and decorated with the excellent taste for which he is noted; and in the centre were dinner tables exquisitely arranged, chivalry with Palms in the centre, while Fern fronds and cut flowers were introduced near the guests, but not in vulgar profusion. These were introduced under the supervision of Mr. Thompson, Esq., of the City of London Club, and were evidences of a refined taste, and examples that will doubtless be much copied.

TAKE it all in all, I have no hesitation in saying that the Rose Show held at the Crystal Palace on the 25th was the finest Rose Show that ever was held, whether we look at its extent, or at the character of the blooms, and this notwithstanding the peculiar nature of the season through which we have passed. If the tropical heat which we had on the Wednesday had continued, doubtless the result would have been different; but happily for all lovers of the Rose, two days of cloudy weather following the storm of Wednesday, gave the queen of flowers an opportunity of recovering herself, and never have we seen her in such beauty as on this occasion. We may have missed the superbly finished stands of Mr. Hodge, but the Rev. E. N. Pochin came boldly forward to take his place, and right well he did it. It says something, too, for the greater attention given to culture by amateurs, that notwithstanding the immense number of blooms staged, there was not a stand that was a disgrace to the Exhibition or a slur upon the grower.

Leaving, then, the merits of the general collection to be discussed by others, I would now specially report on the new Roses and those extra classes which do not come into the regular collections of blooms. In Class 1, for the best twelve blooms of any Rose of 1878, the first prize was taken by Mr. Turner with Miss Ingram, a fine Rose, as we all know, but, alas! not a Hybrid Perpetual. The second prize went to Dupuy-Jamain, a very bright rose pink, something of the colour of Victor Verdier and Madame C. Crapet combined, perhaps a little too dull. The third was taken by Nardy Feres, a full Rose, somewhat dull, but good; the fourth by Edouard Morren, rough, and showing too much the green eye. There were in several of the stands much better examples of it exhibited, showing itself to be a good Rose, but requiring peculiar cultivation.

In Class 10, for twenty-four roses of 1878 and 1879, there were several stands exhibited, none of them of very great excellence, in fact, indeed, not to be expected, when we remember how they are cut about. In Mr. Keynes's lot, who took first prize, were Leopold II., Reine Blanche, very white, but rough; Dupuy-Jamain, very pretty;

Madame Croyton, Clémence Raoux, Devienne Lamy, a beautiful carmine red, something in the way of Baron A. de Rothschild; Henri Ledechaux, a bright carmine rose, large and full, and deserving of greater attention than it has received; Adrienne Christophe, a splendid Ten of novel character; Berthe Baron, delicate rose; Julie Tonvina, flesh-colored rose; Adolphe Broussier, coarse; Adrienne de Montebello; Marquise de Mortemart, beautiful satin white with flesh tint, a splendid acquisition; Julie Treve, light flesh; Madame Jacquier, bishop's purple, good; Madame Clerf, and Marquise de Castellane. In other stands I noticed Reine d'Or, a beautiful Noisette of light clear yellow and good substance; Louis Van Houtte, Lacharme's new Rose, very good, and likely to be the Rose of the year, bright fiery red, shaded with blackish crimson, and with the form of the Cabbage Rose; Thyra Hammerick, a beautiful delicate flesh colour, of good form, but rather inclined to show the eye, still very beautiful; Florent Etoua, Miss Poole, Charles Ferry, Lord Napier, seedlings of Mr. Turner's; the last I think the best, and a good-shaped flower. As I hope to have the opportunity of more closely inspecting the new flowers at the National Rose Show, I shall reserve more detailed criticism till after that.

The yellows were a fine display, and the gorgeousness of the blooms of Maréchal Niel exhibited by Mr. Keynes and others could not be surpassed. The Teas were also very good, but I think we have seen them better. Roses in pots were contributed by Mr. Turner and Messrs. G. Paul & Son, and were excellent examples of culture, the plants small and well bloomed. The hanging baskets were very poor, but the rustic Fern stands exhibited by Messrs. Dick Radcliffe & Co. were admirably arranged and very effective; there was an amount of taste in them that one does not often see in such objects. In the class for a hundred Roses in basket or stand Messrs. Paul & Son were first with a central basket and four cornepans round it filled with Roses and a few Fern fronds. Altogether the Show was a rich treat, and for those who had leisure to enjoy it, which I had not, it must have been a pleasure indeed.—D., *Leol.*

## ROYAL HORTICULTURAL SOCIETY.

June 29th.

This was the great Rose Show, with which is incorporated that of the National Rose Show, the name of which, and the fact that its chief promoters are content to defer their title still, will be sufficient guarantee of the excellence of the Exhibition. Roses accordingly were the heroes—no, the heroines—of the day, for with the female gender we associate all that is lovely—all that is pure. Our old Latin grammar taught us that the masculine was more worthy than the feminine, the feminine more worthy than the neuter; and our old Latin grammar was very anglican; we have long since thrown it away, though not forgotten the troubles it caused us. In the case of the Rose, at least, the said grammar was utterly at variance with the truth, for nearly every gem among Roses is to be found with the prefix Madame or Mademoiselle, sometimes plain English Miss. There are a great many *Monsieurs*, too, but as well-behaved gentlemen they will not too loudly assert their own merits.

Well the combined Royal Horticultural and National Rose Show maintained its high reputation, well England, whose emblem is the Rose, maintained that emblem as the fairest of the fair, and well too the valiant knights who did battle in her honour maintained her honour against all comers. If the competitors were not so numerous as at the Crystal Palace on the previous Saturday, that was probably explicable by the hot weather we have had since; and although the same cause, probably, detracted from the beauty of some of the blooms—fadedness, for instance, which is so important a point in the Rose, still there were Roses, such as Messrs. Paul & Son's Cant's, and Mr. Pochin's, which would secure general admiration in any exhibition and in any year. That such beauties were appreciated—long lingered over by fashionables, and by professionals "scribbling away," as a lady at our ear said, cannot be a matter of wonder. They deserved it.

In Class 3, seventy-two single trusses, Messrs. Paul & Son were first with fine examples of Charles Verdier, Perfection de Lyon, Abel Grand, Queen Victoria, Miss Ingram, Nardly Flores, Alfred Colomb, Baroness de Rothschild, Madame Furtado, Duke of Edinburgh, François Louvat, Leopold I., Prince Camille de Rohan, Elie Morel, La Brillante, Reine Blanche, Xavier Olibo, Triomphe de Rennes, Madame Rivas, Mlle. Marie Ridy, Maréchal Niel, La France, Marguerite Dombrain, Madame Bontin, Prince de Portia, Madame Rival, Victor Verdier, Thorin, Pitard, Marguerite de St. Amant, and Marie Bannmann. Mr. J. Cranston, Hereford, took the second position with excellent stands, noticeable in many ways. Annie Wood, Sonvenir de Dr. Boll, La France, Due de Rohan, Comtesse de Chabrillant, François Treve, Pitard, Queen Victoria, Alfred Colomb, Madame Charles Wood. The third prize went to Mr. Cant, Colchester, who had among other beautiful trusses of Madame Brossy, Prince de Portia, Henri Ledechaux, Gloire de Saintenay, Dr. Andry, John Hopper, Horace Vernet, Pierre Notting, Xavier Olibo, Charles Lefebvre, and Comtesse de Chabrillant. Mr. Keynes, of Salisbury, was fourth. Messrs. Francis, of Hertford, also exhibited in this class.

The next class was for three trusses of forty-eight varieties. Messrs. Paul & Son were again first, showing splendid trusses of Prince

Camille de Rohan, Victor Verdier, Black Prince, Dr. Andry, Xavier Olibo, Alfred Colomb, Horace Vernet, Queen Victoria, Baroness de Rothschild, Marguerite de St. Amant, Mdlle. Marie Ridy, Duke of Edinburgh, Marguerite de Mortemart, Maréchal Niel, John Hopper, Camille Bernardin, Maurice Bernardin, Sophie Coquerelle, Elie Morel, Pitard, Abel Grand, Caroline de Sansal, and Antoine Ducher. Mr. Turner, of Slough, came second with excellent examples of several of the above. Prince Camille de Rohan, Alfred Colomb, Sonvenir de Williams Wood, Comtesse de Chabrillant, and Devienne Lamy. The third prize was taken by Mr. Fraser, Lee, Bridge.

Class 5 was for twenty-four varieties, three trusses of each. In this Mr. Cranston took the highest place with beautiful and fresh examples of Alfred Colomb, Madame Vidot, Madame Josephine Vidot, Mdlle. Marguerite Dombrain, Marie Bannmann, Baroness de Rothschild, Xavier Olibo, Alfred de Rougemont, very dark; Madame Furtado, Alice Dureau, Annie Wood, Marguerite de St. Amant, Antoine Ducher, La France, Josephine de Beaulieu, and Centifolia rosea. Excellent stands from Mr. Turner and Mr. Cant were second and third.

For twenty-four single trusses Mr. Turner was first, showing among others beautiful examples of Paul Verdier, Marie Bannmann, Sonvenir de Vaisse, Ten Acres, bright rose; Alfred Colomb, Prince Camille de Rohan, Monsieur Boncenne, Black Prince, Exposition de Brie, and La France. Mr. Keynes, Salisbury, was second, Mr. Cranston third, and Mr. Cant fourth.

In the amateurs' Class 7, for forty-eight single trusses, the Rev. E. N. Pochin, Silsby Vicarage, again took the premier position with very fine trusses, exceedingly fresh and bright. Every one of them deserved to be named separately, but the following were those most noticeable for excellence—viz., François Louvat, Comtesse de Chabrillant, Mlle. Marie Ridy, Félix Genero, Alfred Colomb, Vicomte Vigier, Madame C. Crapet, Monsieur Boncenne, La France, Fisher Holmes, Dr. Andry, Duchesse de Caylus, Pierre Notting, Charles Lefebvre, Victor Verdier, Triomphe de Caen, John Hopper, Leopold I., Comte de Nanteuil, Baron Adolphe Rothschild, Prince Camille de Rohan, Maréchal Niel, Xavier Olibo, and Comte Cavour. Mr. Ingie was second with a most excellent stand; T. Laxton, Esq., Stamford, third; and R. B. Postans, Esq., of Brentwood, fourth.

Class 8 was for thirty-six single trusses. The first prize here, as in the preceding class, went to Mr. Pochin. The trusses were fully equal to those shown by the same gentleman in the larger class. Among them the following were particularly fine:—Felix Genero, Comtesse de Paris, Marguerite de St. Amant, Alfred Colomb, Princes Camille de Rohan very rich, Charles Lefebvre, Xavier Olibo, Lord Herbert, Duc de Rohan, Victor Verdier, Monsieur Boncenne, Leopold Haneburg, Dr. Cooper, Slough, was second with an excellent stand; J. Hollingworth, Esq., Maidstone, a very good third; and Mr. Ingie fourth.

In Class 9, twenty-four trusses, the Rev. G. Arkwright, Pencombe Rectory, Bromyard, was first. Mr. Stoddart, gardener to J. G. Rebow, Esq., Wivenhoe Park, Colchester, second; Mr. Mondl, gardener to J. Shotton, Esq., Manningford, third; and Mr. Marlow fourth.

Class 10 was for twelve trusses. The best stand came from Mr. Soder, gardener to O. Hanbury, Esq.; the second best from Mr. Quinnell; Mr. Skinner, gardener to Capt. Christy, being third, and Mr. Mondl fourth.

Class 11 was for twelve new Roses of 1868 or 1869. In this Messrs. Paul & Son took the first position with Mdlle. Eugene Verdier; Perfection de Lyon, fine; Thyra Hammerick, fine; Edward Morren, fine; Duke of Edinburgh, splendid colour; Reine Blanche, pleasing; Henri Ledechaux and Devienne Lamy, fine. The second prize went to Mr. Turner; Marquise de Mortemart, Ten acres, purplish rose; Clémence Raoux, Devienne Lamy, Reine Blanche, Miss Poole, pale rose; and Berthe Baron, were the best. Mr. Cant was third, Mr. Keynes fourth. In the stand of the latter Devienne Lamy and Reine Blanche were both fine.

For twelve trusses of any Rose of 1868, Messrs. Paul & Son were first with Duke of Edinburgh, splendid in colour; Mr. Turner second with Miss Ingram, very fine; Mr. Cant third with Monsieur Journeaux; Mr. Keynes fourth with Reine Blanche.

Class 13 was for six trusses of any Rose of 1869. In this Messrs. Paul & Son were first with Edward Morren, Mr. Turner being second with Comtesse de Hainault, and Mr. Keynes third with Edward Morren.

The best collection of yellow Roses shown in Class 14 came from Messrs. Paul & Son, and consisted of fine stands of Céline Forestier, Maréchal Niel, Triomphe de Rennes, Madame Margottin, Gloire de Dijon, and Madame Falcot. Mr. Keynes was second with very fine specimens of Maréchal Niel, Céline Forestier, Madame Margottin, and Triomphe de Rennes.

For six bouquets of Roses, Messrs. Paul & Son were first with Marie Bannmann, Alfred Colomb, Maréchal Niel, Baroness de Rothschild, Triomphe de Rennes, and Horace Vernet. Mr. Keynes and Mr. Cant were second and third respectively. Of the Noisette Roses, beautiful stands of twelve came from J. Hollingworth, Esq., and Mr. Ingie in the amateurs' class; and from Mr. Keynes, Mr. Cant, and Messrs. Paul & Son in the nurserymen's class.

Roses in pots from Mr. Turner and Messrs. Paul & Son were admirably grown; and among miscellaneous stands of cut blooms were several from Messrs. Lee, of Hammersmith, and one of Princess

Christian, from Mr. William Paul, the merits of which have been so often noticed, and which fully maintained its high character.

Fuchsias both in large and small pots were scarcely equal to what we have seen in former years, and on the whole presented rather a dull appearance. The best came from Mr. Cannell, Mr. Weston, and Mr. James.

Mr. James, Mr. Williams and Mr. Fairbairn, gardener to the Duke of Northumberland, St. John House, sent several very fine specimens, the most notable being *Phoenix farinaria*, *Arcen alba*, *Arcen Baneri*, *Phenocarpium sechellianum*, and *Latania horborea*. Most of these specimens were very large, and as regards cultivation most creditable to the exhibitors.

As regards dinner-table decorations, for which prizes were offered by the President, the Duke of Buccleuch, little can be said; they were few in number, and presented little novelty. Mr. Soder took the first position with a very neatly arranged group, the stands of glass each after March's pattern, the stems adorned with Japanese Honeysuckle, and the usual accompaniment of Ferns, Roses, and some Grasses to give lightness. Mr. Hawkins was second, and Messrs. Locking third, the last with an arrangement in which Lycopods were too freely introduced.

The prizes, likewise offered by the President, for the best groups of three plants went to Mr. Bull, who had a very beautiful specimen of *Euphacarpus villosus*, *Curello recurvata*, *Dracena ferrea variegata*, *Hypocherba Verschaffeltii*, *Dracena gracilis*, and *Demonoropsis melanocentra*. Mr. Williams was second with *Arcen Verschaffeltii*, *Grevillea elegans*, *Dracena punctata*, *Sonchus pinnatus*, *Dracena Griffithii*, and *E. J. J.*

Among miscellaneous groups one from Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, contained fine example of *Stanhopia insignis*; *Acinetia Humboldtii* with two spikes of its large crimson spotted flowers, the powerful scent of which quite performed the air; *Acinetia densa*; the bright scarlet *Nassonia cinnabarina*; *Oncidium Lanceanum*, with a very fine spike of its richly-colored flowers; *Tonia Bensoni*, *Dendrobium Bensoni*, *Bronchiopsis sanguinea*, *Oncidium obryzatum*, very fine; *Dendrobium filiforme*, with a large number of its elegant greenish yellow racemes, *Mitella Bogelii*, *Dendrobium*, and *Cattleyas*. Messrs. Veitch sent also a fine group, in which were fine specimens of *Lelia purpurata*, *Barkeria spectabilis*, *Dendrobium McCarthyi*, *D. formosum*, *Ardisia affine roseum*, *Dendrobium thyrsiflorum*, *D. Bensoni*, *Dendrobium filiforme*, the fine hybrid scarlet *Begonias Chelsoni* and *Sedeli*, new *Crotas*, the singular-looking *Aralia Veitchii*, *Gloxinias*, *Dracena Guilloylei*, *Lilium soratum*, and *Palms*, the last forming an elegant backing. Messrs. Rolleston, of Tooting, also contributed a group containing several Orchids, *Gloxinias*, and *Palms*. Messrs. Bell & Thorpe, Stratford-on-Avon, sent a miscellaneous group, in which were some fine single *Petunias*, besides other rarer plants; and Mr. Ware, of Tottenham, contributed a charming collection of hardy plants in flower, together with *Polemonium coeruleum variegatum*, a very effective creamy variegated plant, well suited for bedding. Mr. Jackman, of Woking, sent a number of seedling Clematises, several of which were very pretty; and Mr. Hooper, of Bath, Carnations, Picotees, and Cloves, which, though they received no award, seemed very attractive to the visitors.

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. Messrs. J. & C. Lee exhibited a Lettuce called Lee's Nonpareil Cos, a large broad-leaved variety, the great recommendation of which was said to be that it does not run in a dry season, an opinion which the Committee approved. Messrs. James Carter & Co., of Holborn, sent dishes of Laxton's Quality and Laxton's Quantity Peas, the former raised by Mr. Laxton from Froude and Little Gem, and the latter was selected from the former. Quantities were sent by Mr. Church along with Laxton's Supreme, and received the commendation of the Committee. Quantities was commended at this meeting. Mr. H. Clayton, Hackwood Gardens, Basingstoke, sent an excellent dish of Laxton's Supreme Pea. Messrs. Minier, Nash, & Co., seedsmen, Strand, sent a fine sample of New Early White Italian Tripoli Onion, which received a special certificate. The same gentlemen exhibited large specimens of this variety grown abroad. Mr. Gilbert, gardener to the Marquis of Exeter, Burghley, sent a collection of ten sorts of vegetables, which received a special certificate. Mr. Trotman, Spring Grove Nursery, Isleworth, sent several Strawberries, of which the best was Royalita, a cross between Black Prince and British Queen. The fruit is large, of bright red colour, ovate form, very solid flesh, and excellent flavour. It was awarded a first-class certificate. Mr. Tillery, gardener to the Duke of Portland, Welbeck, sent a dish of Bigarreau Napoleon, a large and handsome Cherry, but they were hardly ripe, and not quite sufficiently coloured. Mr. Elcome, gardener to W. W. Wagstaff, Esq., Klug, near Corwen, sent a pot of Sir Harry Strawberry, with a profusion of fruit. Mr. Gilbert, of Burghley, sent fruit of Victory of Bath Melon, a very excellent variety, which received a first-class certificate. Messrs. Bell & Thorpe, Stratford-on-Avon, sent three varieties of Potatoes, called severally, Ceallia, Beta, Chipper, and Ruby. The three former are white kidneys, and the last a red round variety. The Committee commended Beta as a good early Potato.

FLORAL COMMITTEE.—Rev. Joshua Dix in the chair. The subjects brought before the Committee on this occasion were not very nu-

merous, but several were of great excellence. Most prominent, perhaps, of all were the beautifully-grown *Lobelias* shown by Mr. Moon, gardener to F. Stanton, Esq., Lewisham, some being trained as pyramids, upwards of 2 feet high from the pot, and furnished with blossom throughout; others equally well bloomed were grown in their natural form, and among them Dazzle, dark blue with a white eye, was very free-flowering, and of compact habit. Of the rest, Blue Bell, Blue Boy, Viola, and Alice were pretty. A special certificate was given for the excellent cultivation.

Messrs. Veitch, of Chelsea, sent a number of plants, of which a species of *Dendrobium* with greenish-yellow flowers, marked with lines of purple dots, received a first-class certificate, and a similar award was made for *Barkeria spectabilis asperpa*, a very fine variety. Of the other plants from the same firm, *Begonia Chelsoni* had a first-class certificate, and there were several others, as *Dracena Denisoniana*, which will doubtless take a high position hereafter.

Mr. Bull sent several plants, of which *Erythrina Parviflora*, from the South Sea Islands, received a first-class certificate. This has yellow median variegation, and in some of the leaves the principal nervures are also similarly variegated. If constant in its variegation, it will be a very ornamental plant.

Messrs. Rolleston sent *Chamaedorea graminifolia*, a very graceful Palm, which took a first-class certificate, a variegated form of *Coffea arabica*, which was interesting, *Gloxinias*, and several other plants.

Mr. Ward, gardener to W. B. Kellogg, Esq., had special certificates for excellent specimens of *Agave hystrix* and *A. ensiformis*, and a first-class certificate for *A. aculeata*.

Mr. Turner, Slough, sent a number of new Show *Pelargoniums*, of which *Pollie* received a first-class certificate; the flower with a dark top, edged with purplish crimson, white throat shaded with magenta, and the lower petals crimson, darkly veined.

Mr. Green, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, exhibited a number of interesting cut Orchids, for which a special certificate was given, and *Hyacinthus candicans*, a gigantic white-flowered *Hyacinth*, which had a first-class certificate. Lady Hill had a special certificate for *Woodia alpina*, and Mr. T. Malyn, Lewisham Road, a first-class certificate for *Scelopendrium multifidum* Malyni, a most elegant multifid variety.

From E. J. Lowe, Esq., Highfield House, Nottingham, came a very numerous collection of seedling Ferns raised from various parents. First-class certificates were awarded to the following—viz., *Scelopendrium Axion*, *assemblatum*, *Euphies*, *Flora*, *insinatum*, *compositae*, *migeratum*, *picturum*, *prodotum*, *transformatum*; *Laetia dilatata spectabilis*; *Asplenium marianum admirabile*; *Athyrium Filix-femina hallspanianum*, and *A. F. f. cephalobares*.

GENERAL MEETING.—W. Wilson Saunders, Esq., F.R.S., in the chair. Thirteen new Fellows having been elected, and the Committee awards announced, the Rev. M. J. Berkeley offered some remarks on the principal subjects exhibited. The London fruit exhibited at the last meeting, he said, though perhaps not positively poisonous in the young state, was excessively acrid. He then drew attention to the hybrid Ferns from E. J. Lowe, Esq., which were extremely interesting; persons who wished to raise abnormal forms should, as demonstrated by this collection, take spores from abnormal fronds. The hybrid *Begonias* from Messrs. Veitch were then particularly noticed, and the *Acarus* producing pustules on the leaves of the Pear next occupied attention, and it was stated to be an insect closely allied to the *Acarus* of the Currant-hat, and four-footed.

Major R. Trevor Clarke made some remarks on the *Discoarea*, exhibited at a former meeting, observing that public taste appeared to have undergone a change, and that much more attention was now bestowed on artistic elegance than formerly. He had given the plant referred to to Messrs. Veitch, to see what it would be under high cultivation, and it now appeared as a fine scroll plant. Such plants he considered were most desirable during the terrible colour-worship he had been absorbed in for the last few years.

Mr. Wilson Saunders said in reference to the specimen of *Hyacinthus candicans* exhibited from his own garden, that he had had it in cultivation for forty-five years, and that he believed it to belong to the genus *Hyacinthus*, and although it was a South African plant it was almost hardy, thriving under the protection of a wall. In conclusion, he called attention to the great Show at Oxford to be held from the 19th to the 22nd of July, and mentioned that the President's annual service would be held on the 30th of the same month.

RICHARDIA ETHIOPIA.—Even when not in bloom the pleasing foliage has a happy effect, mixed with other plants; also it is of easy growth. It can be grown in a 12-inch pot, placing it or four plants in a pot, or, individually, in smaller ones. The greatest care required during its growing season is to have it plentifully supplied with moisture; and as it is a gross feeder, it should occasionally have some liquid manure. As soon as the pots get filled with roots they should be set in saucers of water, with a little manure in them as well, and be kept in them while flowering, so that the apices and foliage may attain a full and fine development. By the commencement of summer the flowering season should have ended. Then the plants

should be allowed to dry off gradually, under the influence of the sun, for the space of two or three months, so that the roots may get well ripened. Early in autumn they should be shaken out of the pots, removing all the small stems and saving only the larger ones for potting as occasion may require. When they have been thus prepared, they may be potted singly or otherwise, as before mentioned. A compost of decomposed turfy loam, with a good proportion of cow dung and a little sand, will be found to answer well. Before they have been potted, they may be removed to a frame or pit to be gradually kept moving in growth till the season of flowering comes again in the early spring. The *Richardia* should not be potted too firmly, and care should be taken to have the plants secured from injury by frost. If it is required to bloom earlier than usual, it may be subjected to a gentle heat.—(*The Gardener*.)

### DESTROYING INSECTS BY SOFT SOAP.

In reference to the letter on the virtues of soft soap in your last number, it may interest your readers to learn my experience of them. On setting-up an orchard house last year, I was immediately invaded by a swarm of aphides whilst the trees were yet in bloom. I employed in succession all the orthodox nostrums. I smoked the house, I smoked the plants under little tents, I used quassia water *à la Rivers*, then most deadly of all (to the plants) Gishurst, and lastly I smothered everything in hellebore. The enemy thriving under this persecution, I began to despair of Peaches, and to think of falling back upon Pears; but as a last chance, I laid in a stock of Poole's insecticide and Clarke's compound, but in a lucky moment before I had time to broach these abominations, I got a hint that soft soap well diluted and laid on with a syringe would prove effectual. I tried it hopelessly, and the effect was magical; in three days the green fly vanished from the Peaches for ever, and in a week the Plums, every leaf of which was curled into a little fortress, strongly garrisoned by the blue aphid, were thoroughly purified. During the rest of the season, whenever an occasional brown or black aphid made its appearance it was easily suppressed, and I even saved a part of the crop of Peaches, though several trees had suffered terribly from the medicines. This year it was not till a few days ago, after discontinuing the soft soap for many weeks, that I discovered on a Peach a single specimen of the green fly. My custom is to keep a pail (unpainted) of the solution, 2 ozs. to the gallon, standing in the house, and on the first appearance of honeydew, or other indication of danger, to apply a syringe-full to each side of the tree, taking care to wet every leaf. Nothing more is needed. When the enemy has been allowed to occupy a tree in force, syringe strongly with clean water to wash off the adults, and then apply the soft soap gently as before; this do three days in succession. In winter I dispense with all paintings and sulphurings, and simply apply the soft soap as before, but of double strength, as soon as the leaf has fallen, and again shortly before blooming; and as soon as the fruit is set, a good washing with the weak solution will make all safe, and greatly improve the look of the foliage. The solution used by the Hop-growers would destroy Peaches, whose leaves are apt to fall under the influence of even 4 ozs. to the gallon, and for delicate *Pelargonium* cuttings, half root, 2 ozs. is too strong, unless soon washed off with fresh water. After all, I am not sure that the soft soap has any poisonous virtue. I half think that the enemy is rather drowned than poisoned, the soft soap insuring the thorough wetting of every leaf, from which clean water runs as off a duck's back.

Now can you tell me how to sow Peach stones next month under glass? In what sized pots? How deep? Will they come up this season? What winter treatment should they have? Should they be planted out in the spring? or potted in the orchard house? Also, is there any objection, and what, to planting young Vines in an inside border in September? [No objection.]—ANNANDALE.

EDIBLE FUNGI.—The Woolhope Naturalists' Club, which has its head quarters at Hereford, is doing, among other valuable scientific work, real good to the country, by investigating the edible fungi of Herefordshire and the neighbouring counties. An annual dinner is held at the proper season, when every possible variety of fungus is experimented on, from the fungus pure and simple to the fungus hashed, curried, or dressed with sauce *à l'algues*. Each member is bound by the oath of the club to taste every specimen; and it is a point of honour with

them that, whatever untoward consequences may have arisen from too incautious feeding on *Fistulina hepatica*, they must endure their indisposition with Spartan fortitude. At a recent meeting at Hereford, four new specimens were recorded, one of which, discovered by Dr. Bull, was entirely new to Britain. Although harmless, the new arrivals are no great acquisitions to the fungus cookery book, being exceedingly woody in taste.—(*Food Journal*.)

### RED-LEADING SEEDS.

Is your number of June 2nd I read in "Doings of Last Week" the following:—"Something better than a monument should be awarded to the man who first practised red-leading seeds." If any honour can be attached to that discovery, I think I can fairly and honestly claim it. It is now sixteen years since, after having sown a quantity of Beans in the neighbourhood of a rookery, I was much annoyed by the gentlemen in black abstracting the seeds even before these had vegetated. Knowing the poisonous nature of red lead, I replaced those taken by some treated as follows:—A quantity of seed was put into a box with just as much linseed oil as, when the Beans were well shaken together, gave them a slight coating of oil; I then added a quantity of dry red lead, gave another good shaking, and the process was complete. The rooks tried a few, but left them on the surface. I have ever since dressed Beans, Peas, Cabbages, Radishes, and other seeds usually taken by birds and mice.

I see you recommend the seed to be wetted, in order that the red lead may adhere, but oil is far preferable, inasmuch as under some circumstances Beans and Peas decay before they vegetate, which the oil prevents.—JOSEPH BURGESS, Knutsford.

### ENTOMOLOGICAL SOCIETY'S MEETING.

THE June meeting of the Society was held at Burlington House on the 6th inst., the President Mr. A. R. Wallace, in the chair. An extensive series of donations of entomological publications to the Society's library from the Royal, Linnean, Zoological, and other Societies was announced, including also a fine work by Professor Thorell, published at Upsala, in the English language, containing a very valuable memoir on the Spiders of Scandinavia.

Mr. Maclellan exhibited a curious specimen of *Brachycentris subnubilus* (one of the Ephemerids), having the head and left anterior wing of the female, whilst the whole of the remainder of the body was male. Mr. Dunning exhibited a small silk cocoon, from North China, the caterpillar of which had fed on the Evergreen Oak, although it proved to be very close to the *Ailanthus* species (*Saturnia Cynthia*), of which it was probably a geographical or phyletic variety. Dr. Wallace mentioned the curious fact that a male hybrid silk moth between *Yama-mai* and *Perryi*, had paired with a female *Yama-mai*. He also stated that an interesting series of experiments on silk culture, especially with *Bombyx Mori*, were now in progress at the South Kensington Museum.

Mr. Warwick King exhibited a collection of insects from Tudeles, and the Drachenberg Mountain, Natal; and two cases of Butterflies, sent to the Society by Mr. Henry Ansell, from Kinsebo, South-west Africa, were also exhibited. Mr. S. Stevens exhibited some living specimens of *Scarabaeus semipunctatus*, one of the species of Sacred Beetles, from Venice. Mr. A. Müller exhibited some stems of Juniper bushes with large swellings, supposed to have been caused either by a *Sesia* or *Grapholitha*, two genera of Moths.

Major Mann exhibited an extensive series of drawings and specimens illustrating the economy of the common hive Bee, which he described at great length, contending that many of the statements put forward on the subject in popular works, such as Samuelson's "Honey Bee," and Dr. Camming's work on the same subject, were fallacious, and considering amongst various other matters, that the queen bee is impregnated more than once; that the larva are not fed by the month, but increase in size by endosmosis; and that the queen larva grows by absorption of honey poured over its body, and on which its back rests, as upon a hotbed; that the food of the larva consists of digested pollen and saccharine matter; that there is no anal opening in the larva until the last day of its existence in that state, and that the caps by which the cells are covered on the larva assuming the pupa state, are made by the larva and not by the worker bees.

Mr. A. G. Butler read some notes on the possible identity of *Argemnis Niobe* and *Adippe*; and the continuation of a Memoir by Mr. Crotch, on "The Genera of Coleoptera studied chronologically," was also read.

### SONG BIRDS IN FRANCE.

I CAN most fully endorse what your correspondent "C." says about the absence of song birds in France, for during a sojourn of about three months in spring in various parts of that country, the pleasure of my journey was greatly lessened by

the almost entire absence of small birds, with the exception of the common house sparrow. I did, indeed, once hear the song of the nightingale, but it was from an unfortunate bird confined in a cage.

"Tourneur's" reply is amusing. Certainly one does not expect to hear the songs of birds as one rushes along on the railroad, nor, I apprehend, would your correspondent "C." but I would defy "Tourneur" to say with truth that he as a rule heard or saw any small bird on his way from Lyons to Marseilles. He might, indeed, hear occasionally a nightingale, as it is a bird of passage; but as to a thrush or blackbird, it is not only a *rara avis*, but almost an *incognita avis*, for I know something of that part of the country. The only fact which he adduces—that after February a hedge-popper would be subject to fine and confiscation of his gun, proves exactly what "C." asserts—the scarcity of small birds; for it is well known that insects and other vermin have increased at such a rate in France from the destruction of birds by these valiant sportsmen, that it became absolutely necessary for the French legislature to pass the law for their protection.

"Tourneur," at any rate, is not proficient in natural history, or he would not assert that the thrushes slain in France for the enjoyment of gourmands are bred in England; for who ever heard of the English thrush migrating? The bird he refers to is the fieldfare or northern thrush, which alike migrates to England and France in October.

While I write, a friend tells me that he yesterday met a man with a bundle of at least fifty thrushes, which he had magnanimously slain with the gun which he carried; and on visiting a nurseryman a few days ago I counted a dozen blackbirds, which had been recently trapped, rotting under a bush. Would that the poor British birds enjoyed a "closed season" which the French legislature has found necessary to adopt to preserve the very few small birds which are left in France.—ANOTHER TOURNEUR.

## THE TABLE DECORATIONS AT THE CRYSTAL PALACE JUNE SHOW.

Nevins had judged a more difficult task than that which presented itself to those who had to adjudicate on the table decorations at the Crystal Palace on the 11th of June; and never, perhaps, were judgments more challenged by exhibitors and the public generally than the decisions that were then made, and this for very obvious reasons. These things depend so much on mere taste—neither on the rarity of flowers nor the beauty of the adjuncts—that persons would be, we might be sure, ready to condemn any decision which did not fall in with their own peculiar views on such matters. Hence, probably, the advice given by a clever exhibitor to the Judges was a wise one—"As soon as ever the cards for the prizes are put on get out of the way, or you may hear something *not* to your advantage;" and, in fact, I believe one very irate person did begin to remove his glass and china until stopped by the Palace authorities.

It was distinctly stated in the paper circulated by the Superintendent that the display was to be floral in its character, and that beauty of arrangement would be the chief point to be considered; and this was but just. If rare flowers or magnificent china or glass were to decide the merits of the decorations it is quite manifest that all would not be placed on a level, and money would, as in too many cases, carry the day. There seem to me to be certain canons of judgment and taste which ought to be maintained on the subject, and as the position of judges in such a case is to educate public opinion and not to follow it, I would suggest that these ought to be as follows:—

1. The greatest effect produced by the simplest materials ought certainly to be considered an important point.
2. That it is essential that the tables be not so crowded in the centre that the view is distorted.
3. That large quantities of strongly scented flowers should not be introduced.
4. That harmony of colouring should be considered, and the effect of light on certain colours.

For these there are good reasons. The first can hardly admit of cavil. When the March stands took the world by storm I well remember how charmingly simple were the Forget-me-nots and Lilies of the Valley, and yet how very effective they were! And although there was some objection at first to the award, yet after a time people began to see it was right; and I believe everywhere and in everything true taste is always simple. What is that which we call "cockneyism" but the flagrant violation

of simplicity? What is it we call "ladylike" in dress? is it not simplicity?

The second reason ought to be equally as readily acknowledged. It is true people do not talk across the table, and now that the old custom of taking wine with one another is gone out of fashion we do not require a clear stage and no favour; but withal, the *coup d'œil* of a dinner party ought to be considered, and to so divide the guests by tall and cumbersome decorations as to make it two dinner parties is clearly a great mistake.

We have, by the *diner à la Russe*, got rid of the hot steaming dishes with their strong savoury smells, but we do not want to exchange that for the equally strong odour of highly scented flowers. To have quantities of Lilies, Stephanotis, and such flowers, is to load the atmosphere with perfumes which are positively intolerable to some and disagreeable to many.

With regard to the fourth, it must be remembered that there are many colours which might harmonise well by day, but which do not look well at night. Blues ought to be avoided, as although the stands are exhibited by day, they are intended for night when artificial light is used. All deep blue flowers become nearly black at night, and yellows fade into whites. Again, it must be remembered that a good deal of coloured glass is necessarily now used—ruby and green for light wines, and too much colour, then, in the flowers ought to be avoided as tending to glare, the fault, *par excellence*, of bad taste.

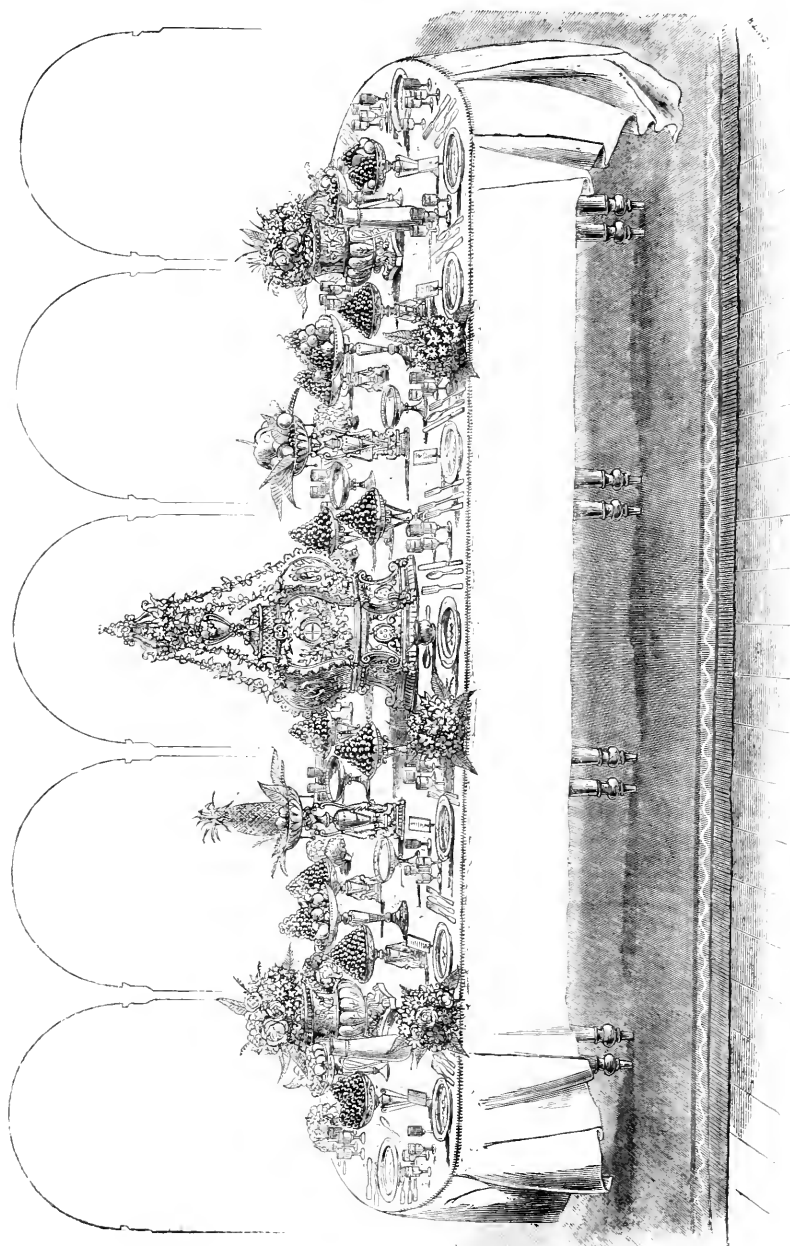
If these be correct canons—and if not I should be glad to be shown where I am wrong—then, as it is easy to see where they were adhered to and where not in the late display, we can at once determine the correctness of the judgment. The three most pretentious displays were those exhibited by Mrs. Green, Messrs. Phillips and Pearce, and Mr. Holt. The first of these was very *recherché* in its way; the centre glass was magnificent, the flowers were of the choicest character, the china and glass admirable, but it had the one glaring defect that it completely hid the company on one side of the table from the other. At a stand-up supper at the end of the room or on a buffet it would have been beautiful, but out of place on a dinner table.

Messrs. Phillips and Pearce's was perfection as far as glass and china were concerned; the little gondoliers placed on pieces of sheet glass were exquisite; but it had some great defects—though not so seriously obstructing the view as Mrs. Green's, yet it did so; it was heavy, and the fault of introducing too many strongly scented flowers, and the heavy character of the flowers themselves, also relegated it to the supper table. It would have been impossible to have passed these over, and therefore extra prizes, I believe of equal value to the first and second, were awarded them. Mr. Holt's was a fresh arrangement of the table which Mr. Wilkinson put up last year, but not arranged with the taste with which that was. The centre of the table was hollowed out and water introduced, but the centre piece was heavy, and highly coloured candles in highly coloured candlesticks had been introduced. Independently of anything else, its want of adaptability for general use would have been sufficient to have condemned it.

The first prize was given to a table which relied simply and solely on its floral decorations; there was not an atom of china and glass on it, no excessive care had been taken with the stands themselves, but the arrangement of the flowers was admirable. They were placed in three of the well-known March stands, while in narrow zinc troughs which encircled the table were arranged light and elegant flowers and *Lyceopodiums*. The second-prize arrangement was somewhat similar in character, but an oval-shaped glass stand in the centre gave variety to it. In neither of these was there any obstruction of view, while good taste was their general characteristic.

I do not think that it is necessary to give any detailed description of the other stands. I have simply pointed out what I believe to be defective, and also what I considered to be points of excellence; and it is so manifestly hopeless to describe such things so as to give any accurate idea of them, that it is better left alone.

But I must say a word as to the single stands, and I am sorry to say to a great extent little good can be said of them. They were glaringly defective in many points, and the feat was not to decide which was the best, but which had fewest faults. One with a little attention might have been made very pretty, and the idea was certainly novel. A light greyish blue base was placed on a stand and filled with grasses and Poppies—very simple, but withal it wanted something more. Had the stand been ruby, and had blue Cornflower been used instead of the Poppies, which so soon fade, it would have been very pretty.



I certainly expected something better in this class than anything that was exhibited.—D., Deal.

[Messrs. Bertram & Roberts, although not competitors, had provided a most effective attraction by the exhibition of the Wedding Breakfast Table, of which we give an engraving. In addition to a most tasteful floral display, not one of the pleasant accessories of such a festivity was forgotten. There was the colossal bridecake in the centre; there was the well-known bouquet, composed mainly of Orange flowers, placed beside every second plate, obviously suggesting to the expected guests interesting future combinations. The fruit stands were covered with the choicest products of the Rockhill vineries.]

## WORK FOR THE WEEK.

### KITCHEN GARDEN.

Let a plot of ground be trenched and highly manured forthwith to receive a good breadth of *Cauliflowers* and *Walcobers Broccoli*. Grange's Impregnated, if true, is also very valuable, as it is self-protecting, and if planted with the *Caniflowers* it will form a complete succession. These plantings will insure a supply of those useful vegetables all through November, December, and even January. Sow more *Coleworts* of the dwarf and compact kinds, also a pinch of *Cherrell* and of *Corn Salad*. Sow a little *Endive* every week in July. Good breadths of *Brown Cos Lettuce* may soon be sown, as it will not be liable to run to seed. Cutting *Herbs* must be attended to, choosing a perfectly dry day, and cutting the moment they begin to blossom. Let the late *Peas* have every encouragement, more especially by thorough sticking. Knight's Marrows should be stopped when at the top of the sticks; they will then branch out sideways if the ground has been thoroughly prepared. Cut off the late bloom from the latest *Alpine Strawberries*; the flowers after this time will be sufficient for the latest crop.

### FLOWER GARDEN.

Remove suckers from *Roses*, and clear the stems of wild shoots. Strong shoots of *Chrysanthemums* may now be layered in pots to produce dwarf, compact bushes. Those in pots may soon receive their final shift. Attend to staking *Dahlias* and all plants likely to require such support. Propagate *China Roses* and double *Rockets*. *Auricula* and *Polyanthus* seed ought to be carefully collected; it should be kept in the capsules till the proper season for sowing. Perhaps the best way of preserving it is to tie the stems together in small bunches, insert them in thin paper bags, and suspend them in a dry, airy situation. *Ranunculuses* should now be out of the ground; when the tops are withered they are extremely susceptible of moisture, and if not taken up will emit fresh roots; their doing so has a prejudicial effect upon them. They may be parted with facility, and this is better done now than when they are dry and hard. Seedlings should be carefully taken up; many of these will be very minute, and in order that none may escape, it is a good plan to put the soil in which they have been grown into a fine wire sieve; then in working it about in a tub of water the soil will be washed away and the tubers retained. They may be spread out to dry, and then stored in any place where they cannot become mouldy. Put in *Pink* pipings, shading them from extreme heat. Extract decayed petals from the pods in which the seed is forming. As seedlings of *Carnations* and *Picotees* show their colour, all seeds should be removed, unless they are of fine form, in which case they may be retained as border varieties. In the south of England most of the main blooms are expanded; where seed of good quality is required, the proper fertilisation of the various sorts should now be attended to. By a little attention and delicate manipulation, the varieties may be crossed with great certainty.

### GREENHOUSE AND CONSERVATORY.

Many of the plants belonging to these structures will, in a majority of cases, be set out of doors. Care must be taken that they are thoroughly attended to with water, and the worms kept out of the pots. Good depths of cinder ashes are efficient for this purpose, yet even these should be lime-watered occasionally. No drainage can be long complete in pots or tubs if liable to the inroads of worms from beneath. Let every attention be paid to young stock of *Correas*, *Euphorbia*, *Polygalas*, *Ericas*, and *Chorozemas* as to thorough watering, stopping the gross shoots, and giving them sufficient room, with a free circulation of air if in doors. Such as are intended for winter flowering should not be shifted after this time. If any

*Achimenes* remain in a state of rest, they may be potted for a late display. *Cinerarias* from seed should be put into single pots as soon as large enough, and suckers taken from the old plants and nursed in a similar way. All Cacti exhausted with flowering should have the old and withered shoots thinned completely away, receive liquid manure, and have every encouragement to rapid growth. *Pelargoniums* should be cut down in due time before being thoroughly exhausted, and cuttings made. The plants should be suffered to become dry in their pots before cutting-in, to prevent bleeding, which exhausts them much. They may be laid on their sides for a week after cutting, if out of doors, to prevent them being wetted, and when the young bud has fairly shown itself they may be disrooted. *Fuchsias* in large specimens, *Pelargoniums*, *Liliums*, *Thunbergias*, *Euphorbias*, and a variety of other showy and highly-cultivated plants will, of course, take the place of the New Holland tribes, *Oranges*, and *Camellias*. See that all such stock has due attention in regard to watering, using constantly clear and weak liquid manure, according to former directions. *Clerodendrons* will also enjoy liquid manure constantly, with liberal shifts, if not already done. The tree *Violet* should have the side shoots constantly pinched off. *Sollya heterophylla* is a very useful plant, and deserves a place in every greenhouse. Trained to a trellis and constantly stopped, it forms a very ornamental shrub. See to thorough watering daily, with a free circulation of air. Keep up a constant war with all insects. The *Perpetual* and *Bourbon Roses* which have been forced should be placed in a cool situation with the view of regaining further activity; after a season of rest the soil should be shaken from them and all decayed roots removed, after which they should be repotted in fresh rich soil, under the protection of a cold pit, and there plunged. A few plants of the dwarf *Oranges* should be placed in a shady situation as soon as the young wood is sufficiently ripened; an early bloom may thus be obtained. In placing greenhouse plants out of doors I recommend in a previous calendar that a somewhat shady situation should be selected for the purpose, that they might to some extent be protected from the midday sun; at the same time it is no less necessary that the roots should have a similar protection for nothing can be more injurious to the greater number of plants than exposing the pots in which they grow to the force of a boiling sun, for the least inattention in watering is likely to prove fatal to the plants, more particularly to hard-wooded kinds; it matters not whether the plants are in or out of the house, this evil should be prevented. Out of doors they may be plunged in ashes or have the space between the pots filled with moss, and those plants in the house which have their pots most exposed should have the pot inserted in one a size larger, filling the space between the two with moss or sawdust. This will prevent the excessive evaporation through the sides of the pot, from the soil containing the roots, and will save many plants from being lost during very hot weather.

### STOVE.

The plants in this structure should be closely watched, particularly those with very large soft leaves, in order to guard against the red spider which the present dry weather is encouraging. Syringe frequently to keep them in check, and plants much infested with it should be dusted over with dry sulphur. Let the sulphur remain on the plants for a day or two, carefully shading them from the sun, and, if possible, keeping them in a close place. This will be generally found sufficient to kill the red spider, when the plants may be washed with the syringe and placed in their usual situation. Endeavour from this period to establish a robust rather than a rapid growth in the majority of stove plants. Some of the stronger-growing stock, such as the *Poinsettias* and *Eranthemums*, may be stopped occasionally in order to keep them bushy, as also to produce a degree of succession in the order of their flowering. Attend well to the *Euphorbias* for winter flowering, more especially *E. Jacquinædora*, a very gay plant.—W. KEANE.

## DOINGS OF THE LAST WEEK.

### KITCHEN GARDEN.

MANY things are again suffering from the drought, for though the rain frequently promises to come, as yet it tempts us merely by drops. With the assistance of a little sewage water in extreme cases, our chief help hitherto has been surface-stirring and mulching. The latter operation we shall carry on extensively, if this weather last. As yet we have not suffered

much; one or two rows of Peas have been attacked with mildew, which might have been prevented if we could have well watered them in time, or even syringed them with clear lime and sulphur water. One of our greatest drawbacks this season has been the inability to use the syringe and the engine much, owing to the want of clean water. For some time we have had to depend on one large barrel of pure water a-day, and that brought from a distance of three miles. We made a sort of vow a fortnight ago, that we would say no more about water, but here it is again. But for our lawn becoming rather brown, some people would tell us we must have abundance of water. "Such a dense mass of Calabages, such parrot-leaved Cauliflowers, could never come from a dry, exhausted soil." Well, the chief antidotes have been deep stirring at first, moderately manuring, surface-stirring, and mulching afterwards. Our earliest Cauliflowers were not only mulched with rotten dung, but banked up with dry litter, after we knew the ground was warm enough to bring them to perfection. Above all, we had a rather stiff adhesive soil to fall back upon. It is in such seasons that a holding land tells. We have been told repeatedly, that in the light lands of Cambridgeshire the crops will be excessively light. We lately glanced over some of the large fields at Linton Hoo, and so beautiful were the crops, that one might have fancied the fields had the benefit of frequent and heavy rains. No doubt much was owing to the superior cultivation, but something was also owing to the holding character of the soil. Light sandy soils are valuable for early crops, and sure to be productive when from the heavens or artificially you can let them have plenty of water, but if water be not given they will be far inferior to stiffer loamy soils where cracks and fissures are prevented by surface-stirring.

The 23rd was the first day on which we gathered Broad Beans and Dwarf Kidney Beans out of doors; both had been planted out when 2 or 3 inches in height, but, as already stated, we have had little cause to plant out this season, as the seeds have not been molested. As to the general planting of vegetables, it seems to be out of the question during this weather. We raised and transplanted with balls fine plants of Cauliflower that had been pricked out previously, but even these would have suffered much from the moving if we had not shaded them. The season may well teach two valuable lessons. First, before fixing on the site for large gardens, to make sure that there shall be a fair supply of water; and again, while if possible securing light dark-coloured soil for early crops, be as anxious, if there is not abundance of water, to have more tenacious soil for general and late crops.

#### FRUIT DEPARTMENT.

The refreshing rain alluded to a week ago has given an impetus to wood growth, and during the week commencing on the 27th we shall be able to give some attention to thinning and stopping summer growths of fruit trees. It is one of the evils of the grouping system in large flower gardens, that for a month or so almost everything else that will not directly suffer must be kept in some measure in abeyance. They are fortunate who can have this kind of work done without the family being at home at the time, when many other matters must be daily attended to. Getting the flower beds in order will often seem a long and tedious operation, especially when, in exposed places, it is of little use to plant without either pegging, or staking and tying. For ourselves, we should never be able to keep anything like symmetry of outline in beds without a free use of branching sticks; but getting such supports and ultimately concealing them involve extra labour, and all such matters often help to keep the fingers from the fruit trees longer than they ought to be.

*Apricot and Peach trees* were gone over some time ago, but the first will want looking to again. No treatment can be worse than allowing long watery shoots to stand out and dangle from the wall, robbing the smaller and moderate-sized shoots not only of their due share of nourishment, but keeping from them the sunlight. Such strong shoots will rarely become fruitful under the most favourable circumstances. They are chiefly useful when a space is to be filled up, and then when nipped back to—say from 3 to 6 inches in length, several shoots of moderate size can be obtained from each, which will have the chance of being thoroughly matured before the end of autumn. When other matters so press that the whole tree cannot be gone over, and the wood laid close to the wall or trellis, these extra strong shoots should either be early removed or shortened back to obtain secondary shoots of less strength. When fruited on the young wood, Apricots and Peaches generally do best when the wood is little thicker than a goose quill,

and the sooner that is placed near the wall the more thoroughly will the wood and buds be ripened. It is not uncommon to see long shoots dangling from these trees in August, and people complain that they obtain little fruit, as even the blossoms that appear drop and refuse to set. As a rule we all keep too much wood on these trees. Could we make up our minds to thin-out the young shoots gradually, but so eventually, without diminishing root action, to leave the wood thinner, we should have it better matured, and consequently more fruitful. Apricots do not only well on moderate-sized young wood, but also on well-ripened spurs, and so do Peaches, and were we planting afresh, we should be much disposed to lay in the leaders 6 to 8 inches apart, and spur them. In such a case, as in spurred Apricots now, the main shoots remain the same, and the pruning is chiefly confined to nipping back the young shoots in summer, just allowing enough of growth not to start the small buds near the base, which we wish to mature into fruit buds. Root-pruning is all very well, but much will not be required where the growth of the head is duly regulated, and the wood left, be it shoot or spur, has the opportunity to become well ripened.

*Plum and Cherry trees* bear chiefly on spurs on the two-year-old wood, but the young shoots, if stopped early—that is, have their points pinched out when about 6 inches long, and pretty well exposed to the sun, will make fruit buds all along the lower end of the shoot. After such stopping, a bud or two will break into a wood shoot at the point; these shoots should be stopped again, but not all at once, as growing points keep up healthy root-action, and these few allowed to progress a little prevent the buds lower down breaking into growth. In all such cases too strong watery shoots should either be early removed or shortened back, according to what is required of them. By such early stopping, even Apples and Pears may be made to set fruit buds on the lower part of the summer shoots, and frequently do so in abundance, when without such stopping the fruit buds would seldom appear until the shoots had passed through two summers. After the strong watery shoots are removed it is often well to go over the top of the tree first, and come down by degrees. This checks luxuriance where the tree is apt to be too vigorous, and encourages growth where it is apt to be most languid, and no sudden check to growth is thus given. We have some low bush Plums that now form a thick row. Do what we would in the spring, the birds pretty well beat us by clearing them of thickets of fruit buds. Having little fruit to carry in comparison with trees well loaded, they have thrown out strong shoots at the top since the rain, and these we trust to be able to remove and shorten back on the 27th; but to three-fourths of the lower part of the trees we shall do little for a week or so, as the growth there is comparatively moderate.

*Rush and Pyramidal Apple and Pear Trees* we treat much in the same manner, arresting and regulating mere growth at the top of the tree first. This tends to secure a healthy regular growth that will be well matured from top to bottom.

*Insects and Soft-soap Water.*—We have had reason to rejoice in something like a principle of compensation this season. Owing to a scarcity of clean water we could have done little as respects washing fruit trees, and so far as insects are concerned little has been required. We cannot well give up tobacco in some of its forms, as the smoke when needed will reach nooks and crannies, where washings with water would not, or even could not, be applied. Unfortunately none of the cheap mixtures of tobacco are safe to burn among plants. For sprinkling and dusting purposes, all the mixtures advertised are useful, but the process of applying them in any way is tedious and troublesome. All mere dipping and washing mixtures, of which tobacco forms the main part, are not only nasty to use, but if weak are of little service, and if strong they are apt to be as damaging to the shoots as the fly. It would often be much better for the plant to nip off the points chiefly affected, instead of daubing and killing them with tobacco liquor. We have often seen men with tobacco liquor dipping and brushing shoots, when an active fellow with the free use of his fingers as nippers and squeezers, and a forcible syringing afterwards, would have gone over double the number of shoots, and left nothing but cleanliness and health behind him. Smoking we can hardly avoid in confined places. Dusting with all the mixtures spoken of so highly in our pages is all proper, and pepper in any of its shapes is thus valuable; but wherever such a mode is practicable commend us to washing. We believe every wash recommended in these pages is good when properly used, but the older we become the more we like

simple means. We were glad, therefore, to see Mr. Robson bringing soft-soap water so prominently into notice. Of all washes we like it the best, and have frequently recommended it. It is far preferable to common soap, though even that is not to be despised. If we do not boil the soap, we have it dissolved in hot water, and let it stand some hours before we mix it with the syringing water. Except for particular cases, we have as yet seldom used it more than a third of the strength recommended by Mr. Robson—that is, about thirty gallons of water to the pound. We know of no insect that cures to come in contact with it. The only drawback hitherto has been the price, as in retail shops in the country it is rather dear. If it can be had for something like 2d. per pound, then we shall have the cheapest and most effectual remedy for insects in all cases where the syringe or the engine can be freely used. We cannot say we have used it much so strong as Mr. Robson refers to, but even at 1 lb. to thirty gallons it is pretty effectual, and, as far as we can perceive, instead of being injurious is beneficial to vegetation. The cleanliness of the wash, and its comparative freedom from offensive smell, greatly depend on thoroughly dissolving the soap, and allowing it to stand some time before mixing it with the water. We shall look with great interest to Mr. Robson's report on its use on a large scale. Few gardeners, however overrun with insects, would think of a wagonload; but, instead of a few pounds, many of us could manage a hundredweight if the price were much reduced.

## ORNAMENTAL DEPARTMENT.

Had we a change of weather, we might do a little to our flower-bed edges, just to give more variety and fulness, but it is needless to plant in soil like dust, and little or no water to give them. As it is, the beds now beat the lawn. We have hardly lost anything from the drought, except half a dozen Calceolarias. They have been well in bloom for weeks, and are standing the dryness well. Besides the reasons already given, we place much reliance on surface-stirring. We think the surface of most of the beds and borders has been stirred with a Dutch hoe twice during the week. No attempt was made to rake them fine; in fact, a rake is an abomination to us, with its destructive teeth, but a good hoer will leave all very neat by just drawing his hoe over open spaces. If we had a few showery dull days there would not be much room for the smallest hoe. If we have no change, we must much Calceolarias before this is in print. Heat above, and coolness and moisture beneath, are the essentials for their free and healthy growth and blooming. The mulching will assist in securing coolness and moisture.

Many plants are now demanding attention. Hollyhocks and Dahlias need thinning and staking, and the latter mulching; Verbenas require pegging, if not bushed up; Rhododendrons, watering, or mulching, or both; and Pinks and Cloves to have cuttings taken from them and inserted under hand-lights. Pot Roses ought to be plunged to secure free growth, and yet should have attention paid to drainage. Pinks and Cloves ought to be potted for forcing, in order that they may be well established before winter. Cuttings of Roses may be inserted in a shady place in soil nearly all sand; and when they have formed a callus they should be potted and placed in a little bottom heat with a close atmosphere until rooting freely. Many of our house plants we frequently use badly after they have served their purpose. Cytisuses stand very well out of doors, and so do Camellias and Azaleas after their buds are set, but they would do quite as well, if not better, if they were continued under glass. They are often removed that other plants fine in flower or in leaf, as Coleuses, Caladiums, Begonias, and flowering Pelargoniums may be brought in, but they are often injured from the rougher treatment. Heaths that have made their wood in a cold pit should now have plenty of air. Epacris making their wood should be kept rather close to encourage growth. More air and full exposure to sun will be required in August. Many plants that need pruning back after blooming, succeed best when they have a season of free growth, and then that growth stopped and matured by degrees by a free exposure to sun and air. Most of our greenhouse plants, if gradually inured to it, will stand our fiercest sun uninjured, but the roots in pots are apt to be kiln-baked and the fibres burned up. The best securities are double pots with a space of sh-t in air between them, shading the pots, or setting them in narrow pits, so that the pots are somewhat protected and shaded whilst the tops of the plants are exposed.

We shall have a lot of potting directly of large-flowering and scarlet Pelargoniums for late bloom, Chrysanthemums, Salvias, and Ferns for vases and cutting from.—R. F.

## METEOROLOGICAL OBSERVATIONS

In the Suburbs of London for the week ending June 25th.

DATE.	BAROMETER.		THERMOMETER.				Wind.	Rain.
	Max.	Min.	Air.		Earth.			
			Max.	Min.	1 ft.	2 ft.		
Wed... 22	30.191	30.092	91	59	47	60	S.	.00
Thurs... 23	30.117	30.061	77	39	67	61	N.	.00
Fri... 24	30.075	29.836	64	43	63	60	N.W.	.10
Sat... 25	30.018	29.836	70	41	63	58	N.W.	.00
Sun... 26	30.064	29.872	73	54	62	58	W.	.00
Mon... 27	29.977	29.854	72	41	63	58	N.W.	.00
Tues... 28	30.029	29.991	75	57	62	58	N.	.00
Mean...	30.057	29.943	74.14	45.67	63.43	59.00	..	0.10

22.—Cloudy but fine; exceedingly hot; cloudy but fine.  
23.—Fine, overcast; fine; clear and fine.

24.—Densely overcast; slight rain; clear at night.

25.—Fine but cloudy; fine, cold wind; fine.

26.—Overcast; fine, overcast, densely overcast.

27.—Densely overcast; cloudy; fine; densely overcast.

28.—Cloudy but fine; overcast; cloudy but fine.

## TO CORRESPONDENTS.

\* \* We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.

BOOKS (Continued).—Apply to Messrs. Bell & Daldy, Booksellers, York Street, Covent Garden.—The "Cottage Gardeners' Dictionary" with supplement, bound together, costs 6s.

FLOWER SHOW (F. R. T.).—Your division into four classes is correct, but as we neither know your funds nor the time of year when the show is to be held, we cannot offer any suggestion. You had better consult Mr. Cranston, and he will tell you of some local show that you might take as an example, and then write to the Secretary and ask him to send you their schedule.

MYOSOTIS DISSEMINATA.—Mr. D. T. Fish has received many letters asking, under various forms, for some plants. We, too, have received many letters to be forwarded to him. The requests in none of those cases can be complied with. It is most unreasonable to make such applications, and if persisted in must compel contributors to write anonymously.

ERIOGONIA JAPONICA CULTURE (W. M. E.).—That is the botanical name of the plant of which you sent us a leaf. Its common name is the Japanese. It will be grown in a house having a warm greenhouse temperature; for though it may grow, it does not succeed well either against a wall or in an orchard house, or other cool house. We advise you to plant it out in a border made as for Vines, and train the plant to a trellis, or it may be trained as a standard. Give it a good supply of water when growing, and a moist growing atmosphere and an abundance of the temperature from February should be 45° at night, and should be increased to 50° by April, and then to from 55° to 60° up to September. It may fall gradually to 45° by November, and in December and January it will be sufficient if frost be excluded. A good growth having been made, a drier atmosphere will need to be kept up and less water supplied at the roots; in winter give no more water than enough to keep the foliage fresh. Seedling plants are a very long time before they fruit. When they begin to fruit they require a temperature in winter of 55° at night to ensure perfect ripening.

PREVENTING CABBAGES RUNNING TO SEED (Drillon).—There is no means that we are aware of to keep them from running to seed except not sowing too early, choosing a good kind, pricking-out the seedlings in good soil as soon as they can be handled, and planting out in good time where they are to remain. From the 18th to the 14th July is a good time to sow for early Cabbages. The seedlings will be fit to plant out early in September, and will be in use in good time in spring, with but a small per centage of "bolters," if any.

CONVERTING A BRICKFIELD INTO AN ORCHARD (An Admirer).—We have no doubt that your brickfield would make a good orchard, the soil being spread over it as your tenant is bound to do, and water conveyed to it from the river. If the soil were put over it 9 inches or a foot deep it would answer very well. By cuts or open drains the water of the river may be conveyed to different parts so as to keep the whole wet. Ors are not so profitable as they were formerly; we have known them sold for from 30s. to 60s. per acre, when growing about five miles from a large town. Of the weight per acre we have no data.

VERBENAS DISEASED (A Constant Reader).—The branch sent shows evidence of both blight and mildew. The fungus may be destroyed by fumigation with tobacco, and the mildew by thoroughly dusting with flowers of sulphur. The standing of the pots would not induce disease nor injure the plants.

LISTS OF SUPERIOR ROSES (A Constant Reader).—HYBRID PERPETUALS.—Duché Criméon: Une de Cazez, Empereur de Maroc, Lord Vieux, Marché Valais, Prince de Saxe, Cécile de Rohan, Souvenir de Dr. Jamin, Baronne Pelletan de Kinkelin, John Keyes, Criméon, Scarlet, and Carmine: Alfred Colomb, Charles Lefebvre, Dr. André, Fisher Holmes, François Lechère, Madame Bontin, Madame Julie Demay, Maurice Bonnier, Saint-Vaise, Madame Vardier, Duchesse de Caylus, John Hopper, Lady Suffield, Jules Margottin, Victor Verdier. Rose-colored or Pink: Comte de Nanteuil, Baron Prevost, Felix Genero, W. Griffiths, Cecil de Chabrilant, La



house, even with your heating medium the same in each, you could make them quite different by the difference in air-giving. We have grown Melons and Cucumbers successfully in the same place, but it is not desirable. The Melon as it ripens requires a drier atmosphere, whilst a moist atmosphere is best for green young cucumbers.

**VEGETABLE DESTROYER (An Amateur).**—We presume that you have had the due repaired. You need only continue the former treatment, keep the air moist, and give a good soaking to the roots of tepid weak liquid manure. This will promote the growth of the young leaves. Do not remove any of the old leaves that are even slightly green.

**GRAPE (A Constant Reader).**—Mrs. Fince's Black Muscat and Royal Asch are not suitable for our door culture. We would, however, plant Miller's Burgundy and Black July. But why confine yourself to black sorts, when you can do so much better with white, as Early White Malaga, Sultana's Sweetwater, and Royal Muscadine? (E. R. P. Tenby.) Black Concord and Black Prince for the cool house; Black Seedling water and Black Hamburg for the heated house. Plant them in the autumn. Winter Nellis or Marie Louise Pear will suit.

**WATERING MELONS (Advance).**—The water a Melon will require in a week is entirely dependent on the weather. If the weather is bright and hot, every light, say 6 feet by 2 feet, will require four gallons twice a week, and half that, if once a week, if the weather is dull. The watering will need to be continued until the fruit is full-sized, well netted, and begins to ripen; then a drier atmosphere is more suitable.

**GENERA CHROMATELLA POTTING—LACHENALIA QUADRICOLO (A. B.).**—The Geniera is a stove plant, and requires to be potted when it begins to grow, a compost of one part fibrous loam, one part sandy fibrous peat, one part leaf soil, one part charcoal, in pieces from the size of a pea to that of a hazel nut, and one part silver sand. Some pot before growth commences, and in fresh soil; that you may do, giving the plants a good watering when they are about an inch high. The Lachenalia should also be potted when it begins to grow, or a little before, any proposed increase being then effected by division of the roots. Light fibrous loam two parts, and one part leaf soil, will grow it well. September is a good time to repot. Lachenalia do well on a shelf in the greenhouse.

**MELON LEAVES TUFTED (Idem).**—The tufted and crumpled appearance of the leaves is due to a deficiency of bottom heat, the consequence being insufficient root-action to nourish the fruit and leaves. Being near the bottom of the plant, the leaves complain of cold, and in consequence the contrary they keep the neck moist and canker may result. Good healthy foliage, and on the shoots on which the Melons are borne is what is wanted. Five fruits on a plant are too many; we think two or three enough. We know some take all the fruit that swell, but we find two good healthy-growing and flavoured Melons are more satisfactory than more. A good supply of sap is necessary for thick flesh, juiciness, and flavour. Overbearing much deteriorates flavour.

**REMOVING WELLINGTONIA (Subscriber).**—There is nothing more difficult to transplant than the Wellingtonia. Your tree of eight or nine feet high would require a large trench to be dug round it, and to run out a trench as deeply as the roots, and refilling it. Let the trench be so far distant from the stem that a number of the roots will be preserved in the ball you will need to retain, and we would work under the tree so as to cut the roots beyond those which you wish to retain, and lift with them. You may give a few good waterings to the ball if the autumn prove dry. By doing this in autumn, or, rather, late in summer, there is a chance of the tree making fresh roots near the stem, and on the presence of these depends in a great measure the success of the removal. In March open out the trench, and prepare for removal. Keep as much ball as you can, and if you can keep a good number of roots with some soil adhering it is well; but if it fall away from amongst thick, long, and fibrous roots, your chance of successful removal is extremely small; therefore defer the removal until that time next month. On the other hand, if the roots are fibrous, having good hold of the soil, transplant, and in planting do not bury the tree in a hole, but let the setting on of the roots be rather high, not covering those near the stem with more than 3 inches of soil. Water so as to settle the soil about the roots, and make secure against winds. Water as required, so as to keep the soil moist, but avoid making the soil very wet, as no tree will grow when the soil, by frequent heavy waterings, is saturated and cold.

**BALMAM FOR SEPTEMBER BLOOMING (Idem).**—To have fine plants for September, in September, the seed must be sown about nine weeks previously, but much depends on the management. We have seen Balsams exhibited in August from seed sown the second week in June, or about eight weeks, that were very fine, what they wanted in size being compensated for by large full flowers and fresh foliage. For blooming in September the seed ought to be sown forthwith, and every encouragement given the plants.

**FUCHSIAS AND CARNATIONS BECOMING SINGLE (An Amateur).**—It is difficult to believe in either of those once double becoming single-flowered. Some Fuchsias have this tendency, but it is only the first flowers; the others which follow are double. We have now several plants with both double and single corollas, and should have no regret to express if they were all single, for the latter are much the finest. The Carnation, we think, will improve; the first blooms are often inferior, but the second and third are magnificent, and even with that in some seasons they are not up to the mark.

**GYMNOSTACHYUM VERSCHAFFELTII AND STREPTOCARPUS AIFLOREUS TREATMENT (D. M.).**—The former is propagated by cuttings, which if inserted in sandy peat, surfaced with sand, root freely in a hotbed covered with a bell-glass, or they will do so in a pot, but in the latter case you need to bottom heat. We would also answer. The Gymnostachyum requires the usual stove treatment, but ought not to be syringed overhead, and yet a moist atmosphere must be maintained with a slight shade from very bright sun. It is best grown in a rather deep pot, the mixture using a compost of two parts silver sand, one part sandy light fibrous loam, and one part each of silver sand, broken pots, and charcoal, in pieces between the size of a pea and a hazel nut, the whole well mixed, but not sifted. The compost is better rather rough, and when growing freely give water copiously, but in winter none beyond that which is needed to keep the foliage fresh. The Streptocarpus succeeds in a compost of two parts light sandy loam, and one part leaf soil. It is raised from seed sown in spring and placed in a hotbed, and also by dividing the plant. It is a cool stove plant, requiring

to be grown on a shelf near the glass, and succeeds under the same treatment as that given to Gloxinias, watering and potting when growth is going on, and keeping moderately moist, not dust dry, when at rest.

**CHANGING THE COLOURS OF FLOWERS (J. Clark).**—We have no knowledge of the changing the colour of flowers by the use of chemicals, and have no faith in such doctrine.

**STRAWBERRIES (Lang).**—Your collection of Strawberries is very choice, and we could not recommend you anything better. Myself's Mammoth is the largest Strawberry we know, but it is worthless, and that is the case with most of the very large varieties. We should say that a fruit of Sir Joseph Paxton weighing 1 lb. is a large one.

**SEEDLING ROSE (A. Bur).**—Your seedling Rose is deficient in quality, there is a roughness in the outline, and not sufficient petals. The flower is not full enough. It may be useful as a border Rose, but nothing more.

**MUSA CAVENDISHII (R. B. N.).**—There can be no objection to its fruit forming one of eight distinct dishes.

**SELECT ZONAL PELARGONIUMS (Marp).**—We presume you want them with flowers of various colours, but you leave us quite in the dark as to your requirements. St. George, Christine, Glow, Provost, Rose Red-tail, Bayard, Waltham Seedling, Purity, Blue Bell, Amy Hogg, Emile Lican, and Roi d'Italie.

**BRONZE AND GOLD PELARGONIUMS (Pepetier).**—Beauty of Caldarale, Keelish Hero, Mrs. J. Todd, Imperatrice Eugenie, Crown Prince, Black Douglas, Red Gauntlet, Mrs. A. Lowndes, Reine Victoria, Sybil, Mrs. Lewis Lloyd, and Red King.

**WHITE VARIETATED PELARGONIUMS (Idem).**—May Queen, Waltham Bride, Snowdrop, Castlemilk, Flower of Spring, Bright Star, Alma, Albion Cliff, Bijon, Flower of the Day, L'Elegance (Ivy-leaf), and Lady Plymouth (sweet-scented). Too many by half to grow.

**SALMON-TINTED PELARGONIUMS (Idem).**—Emile Lican, Madame Rodolph, Monsieur Barthe, Pioneer, Victoria de Pache, and Virgile.

**GRASS IN ONIONS (S. P.).**—They are the larvae of the Onion fly (Anthomyia ceparum). See what we said at page 423 in our No. 481.

**INSECTS (C. C.).**—The small objects found on your Rose tree are the swollen bodies of plant lice (Aphis rosea), which have been individually attacked by the female of a very minute ichneumon of the genus Aphidius, which has laid an egg in the body of each aphid, and which parasite, when arrived at the perfect winged state, burst through the dried and swollen skin of the aphid by making a small circular hole. You consequently will easily understand that it is for the advantage of your Rose tree that these swollen plant lice should not be destroyed, as by so doing you would destroy your friend the Aphidius.—I. O. W.

**NAME OF PLANTS (J. R. Boyd, and J. Englefield).**—We cannot name plants from leaves only. (Dickens).—1, *Bignonia speciosa*; 2, *Polypodium*; 3, *Phytolacca*; otherwise *Phytolacca vulgaris*. Your Ferns are both forms of *Polystichum angulare*. (A. M. H.).—2, *Pteris cretica*, and No. 1 is a variety of it, called *alcoholetica*; 3, *Nephrolepis tuberosa*; 4, *Neoptelepis ciliata*; 5, *Neoptelepis ciliata*; 6, *Kerria japonica* d.p.; 7, *Sinapis arvensis*; 8, *Sinapis arvensis*; 9, *Sinapis arvensis*. The last autumn British Plants "British Plants" Britishly, when complete, cost little short of £30. (J. Moore, Saintfield).—Your edging plant is a golden-variegated form of the Ground Ivy (*Nepeta Glehoma*), a common British weed, and distinguished as *Nepeta Glehoma* foliis aureo-variegatis. (Thomas).—Silene dichotoma. (Quercus).—Lycium Ramulosum. It is very readily propagated by cuttings.

## POULTRY, BEE, AND PIGEON CHRONICLE.

### INFORMATION.

A CATALOGUE of prizes to be awarded on the 9th and three following days of August, at a "West Metropolitan Exhibition of Poultry, to be held at New Grounds, Kensington," has been sent to known poultry exhibitors. No committee is mentioned, but "All communications are to be addressed to Mr. Charles Stevens, Acting Secretary, No. 1A, Orchard Cottage, Earl Street, Kensington." On inquiring there we find that Mr. Stevens has hired two unfurnished rooms, at a very small house, in a very small side street, and only calls there for letters and parcels. He told his landlady that he came from Manchester.

### BROWN RED GAME BANTAMS.

I HAVE been well pleased by reading the remarks made by "GALLUS" and other gentlemen—namely, Messrs. Croeland and Entwistle, and I fully agree with them that it is high time this variety should have a special class. I have bred about eighty of them this season, hatched from January to May, have pullets at present fit for exhibition, and shall have several pens ready by August. I was very glad to read in the Journal of the 2nd inst. that the owner of forty or fifty Brown-Red Bantams would gladly subscribe for a silver cup, and Mr. Entwistle, of course, would do the same. I think that if subscriptions were raised, a five or ten guinea cup would soon be secured. I will give one guinea. I should be well pleased to see some committees have a class for our beautiful pets. I believe them to be the hardiest and the best layers of all Bantams.—F. STEEL, Burley, Wharfedale.

LONG SUTTON POULTRY SHOW.—We have received a prize schedule of the above meeting, which is to take place on the

5th and 6th of October, and the liberal prizes offered justify the expectation of a first-rate show. Eight silver cups of five guineas each, and four of three guineas each, are allotted, besides most liberal money prizes, to the best pens in various classes. There are classes for single cocks, and also for pairs of hens or pullets, so that the competition is open to nearly all who have valuable specimens of poultry or Pigeons at command. There are also classes for the best table fowls to be shown alive, any pure breed or cross breed being equally available; likewise silver cups for both Pigeons and Rabbits. Though not so interesting to the general public, there are heavy classes confined strictly to the neighbourhood. It is announced, "A catalogue and prize list will be forwarded to all prize-taking exhibitors by the Thursday's post (October 6th), free of charge."

### FRENCH POULTRY.

THE annual exhibition of fat animals, poultry alive and prepared for market, seeds, grain, and agricultural implements, took place in Paris last month (April), and no Englishman who visited it could fail to be struck with the great attention paid to the rearing, feeding, and preparing poultry for sale. France in past years was not famous for either beef, mutton, or pork; good fish was difficult to procure in Paris and other places far from the sea; and, consequently, farmers turned their thoughts to poultry, which is a much more common article of food in France than with us, partly, perhaps, on account of climate, and partly as the result of study and practice, which have produced the best races of poultry by economical methods. Including Pigeons and Rabbits, there were no less than seven hundred lots of live poultry at the exhibition, the males being shown singly, and the females by twos, threes, and fours; amongst the most remarkable were the black-tufted Crève-Cœur, the Houdan, La Fliche, Maas, and Bresse fowls, and the Turkeys. The lots of dead poultry, two birds in each, amounted to four hundred, each kind being prepared for market in the usual way. In the case of the choicer sorts, the care bestowed in the rearing showed itself in a remarkable manner; the wing bones were curious, from their smallness, while the amount of flesh was in inverse proportion, and the general appearance of the skin delicate and smooth; in some cases the appearance was improved by wrapping the fowls in cloths dipped in milk, but this refinement may be set down amongst the fancies, or, as our neighbours would say, the *couquetteries* of a special market.

Fowls are sent to market in France in three conditions—ordinary, half-fatted, and fully-fatted. The fattening is carried on in a very systematic manner, the cramming being performed by hand, as with us, and the food being composed of mixed meal—Indian corn, barley, &c. In some cases the fowls are kept on perches, to which they are fastened by the leg, and which are supported by a central iron stem, the whole turning easily on its centre, so as to save as much time as possible to the feeders. The importance of the poultry-rearers' business may be indicated by the high prices which fattened capons and pullets fetch in the markets. In the quotations at the *Halles centrales*, the great market of Paris, we find the following:—Fowls, common, from 1*fr.* 20*c.* to 3*fr.* 52*c.*; ditto, ordinary, from 2*fr.* to 4*fr.*; ditto, fat, from 3*fr.* 50*c.* to 6*fr.*; fat capons, 5*fr.* to 7*fr.*; Ducks, 1*fr.* 80*c.* to 3*fr.* 25*c.*; ditto, fat, from 3*fr.* 50*c.* to 5*fr.*; Turkeys, ordinary, 3*fr.* to 7*fr.* 25*c.*; ditto, fat, from 8*fr.* to 12*fr.* 50*c.*; Geese, ordinary, 3*fr.* to 5*fr.* 75*c.*; ditto, fat, from 6*fr.* to 8*fr.* One positive proof, however, is worth a dozen general assertions. A poultry show took place the other day at Lons-le-Saunoy, in La Bresse, famous for its fowls, when 400*fr.* in money, and a large number of silver and bronze medals, were awarded, the Minister of Agriculture presenting the society with 500*fr.* and ten medals. The capons that won the prizes averaged nearly 9*lbs.* each in weight, and the pullets 5*lbs.*, the prices being 12*fr.* and 7*fr.* respectively. Extra fine fattened capons often sell for 12*fr.* to 15*fr.* In our opinion the very fat fowls of France are inferior in delicacy to the half-fatted; the actual appearance of fat in fowls detracts in our estimation from the delicacy of the food, but this is only a matter of taste. The essential point is, that the breeding of poultry is carried on so as to serve all tastes, and create a very large demand, and a business of considerable importance; while, better still, the production of this expensive poultry causes an improvement both of the race and of the methods of rearing and feeding, so that the middle and lower classes have a positive interest in the subject. This attention to poultry-breeding also gives rise to an abundant supply of eggs, and a very large export trade.

Amongst the curiosities of poultry-breeding may be mentioned the adoption, in several parts of France, of perambulating fowl houses; these are constructed like omnibuses, the interior being fitted up as a fowl house, and taken on to ploughed or other land where there is a plentiful supply of insects; thus the fowls obtain food which they enjoy, and the farmer has the aid of valuable assistants without charge. With a little care during the first day or two, the fowls become quite accustomed to their travelling home.—G. W. YARR.  
(—Food Journal.)

### HANTS AND BERKS AGRICULTURAL SOCIETY'S POULTRY SHOW.

WE knew not whether it is that subjects are dull in common with trade, but we fancy our great papers have taken more notice of agricultural shows of late than they used to do. We are glad of it. We have noted another thing. For a long time all sorts of writing, and, consequently, of reading, have been dull, and if anything choicer was said, it was almost apologetic for. We were pleased to find "WILKINS RECTOR," in his report of the Taunton Show, had broken through the rule of merely saying that in the Dorkings Mr. C's first-prize pen was better than Mr. W's second; and among the Spanish, that Miss N's third-prize pen should have been second, &c. A visit to a poultry show, when it forms part of an agricultural meeting especially, should be an outing. The varied objects and classes should each bring admirers, till the whole tells well in numbers and in receipts. The Hants and Berks Society did wisely when they decided on moving their Show from town to town. There are few places that have not some special attractions that help to make up the day's pleasure. We are rich in the neighbourhood of this Show in things that are of general interest—there are the remains of Basing House; old Basing church; the noble Basingstoke church with its rare casket, its fine old bequests; the Chapel Lytton in the cemetery; if disposed to go a little farther afield, the unique Roman town at Silchester, now being gradually brought to light and the air's.

It would seem that the young men of Basingstoke, when they left their good town and sought their fortunes in the metropolis, were not unmindful of their county or their town. There used to be many such good deeds registered on the walls, but the "improvements" that have recently taken place, they have, doubtless, been consigned to the lumber department. We have a recollection of one who, having prospered in London, heaped a sum of money for ever, the interest to be applied to the use of young men entering the cloth-mercer's trade, who were to be supplied with loans amounting to so many *rose nobles* each, to be repaid, &c. We find now only one of these records. "Sir James Lancaster, Knight, gave this town an annuity of £118 *fs.* 8*d.* yearly for ever, to be paid by the Company of Skinners, London." This was for lectures, for those who went to hear, and those who stood in need.

This is really an interesting show. It reads in the footsteps of the large meeting, and this year, when we saw the double rows of sheds all covered with stout cloth, the comfortable stalls for the cattle, the preparations for the hunters' leaps, the implements, the floral show, when we heard the strains of the music, the puffing and hissing of the machinery in motion, and saw the space occupied by the Exhibition, we could not help admiring the enterprise and perseverance that have been shown, and congratulating the promoters on their deserved success.

It is met in an agricultural district that the Dorkings should come first. The prizes did not, however, stay at home. As will be seen in our list, they went to Chiswick and to Farnham. It was a good class. Mr. Lingwood and Miss Julia Milward will be warrant that the *Cochons* were good, especially the Grouse, but we regret the prevalence of culture hocks. The *Gans* were excellent birds, and shown in capital condition. Messrs. Cruys and Matthews are not novices. The improvement that has been so often noted in the *Poland* classes was visible here. The prize birds lost nothing to desire. *Spanish* were good, but seemed to be moulting early. The Golden-pencilled *Hamburghs* were quite average specimens, but neither they nor their Silver brethren ever appear in force at these shows. The Golden and Silver-spangled male amuse, and but for some colored deaf ears, we should say we have seldom seen better birds. Both Light and Dark *Bantams* were well represented in numbers, and in quality with one exception. Many, indeed we may say the majority, of the Dark birds were culture-hocked. Mr. Pares well deserved the prizes he took with his Light birds. We believe we have seen the Game *Bantams* better than they were as a class. They had, however, good birds in the prize pens. There were excellent birds among the Bantams of "Any other variety," and more prizes could have been worthily bestowed. The same may be said of the *French* breeds, which were excellent. The "Variety class" held its own with Malais, Silbies, Andalusians, &c. Mr. Fowler took both the prizes for *Ducks*. The competition was not great, but had it been greater, the result, we believe, would have been the same. We must refer our readers to our list for the *Pigeons* and *Rabbits*, which were of high quality.

DORKING: 1. Rev. J. D. Hoyle, Bradenstoke, Chippenham. 2. J. Smith, Shillingbury Park, Epsworth. 3. J. H. Clarke, Maidenhead. Miss J. Milward, Newton St. Loe, Bristow. 4. J. H. Clarke, Maidenhead. 5. H. Lingwood, Creeting, Newham Market. 6. Miss J. Milward. 7. A. Curtis, Stratus; H. J. Godfrey, Hammersmith; W. Cooper, Burghfield. GAME:—Black-backed and



letter from a gentleman at Bristol, who has some of my relations, and it was to this effect—"I consider the name of this breed should be changed to Black Brazilian Ducks, because it is well known their origin was in Brazil, and not the East Indies. Such a misnomer seems very ignorant and absurd. The breeders of this variety, of which you are one of chief, should agree to rectify the error." Now, when Mr. Hewitt writes of us he always calls us "Bueneo-Ayrean," and when my great grandfather was taking all the first honours at Birmingham, &c., he was always so called; but we are more widely known under our present name, and why trouble to alter again and thus unsettle what is now believed by most to be our correct title? When in our wild state, I have been told our relations are found at some seasons flying in most of those places.

"JUSTITIA" says at Manchester ornamental waterfowls numbered twenty-five entries. True, but twenty of those were off the garden ponds, and were not really what I may call exhibitors' entries. Again, he says, at the Palace Show "not even the sop of a highly commended or commended being dealt out to Mrs. Hayne, who took first and third at Birmingham, or to those by Mr. Burn; Mr. George, who took first and third at Bristol, alone coming in for one highly commended." Now, Mrs. Hayne's first-prize Birmingham pen was sold at the auction in Bingley Hall for £4, and was not at the Palace Show. Mr. Burn, who took the first, second, and cup at Bristol, was not able to send a single pen to the Palace Show owing to the railway company sending his birds from the Bristol Show into Cumberland instead of Yorkshire, where they were lost for a week; although much praise is due to the party who received such an unexpected addition to his pets for the great care bestowed upon them, yet they could not go to the Palace Show. Mr. George took the third prize, and not, as stated by "JUSTITIA," first and third at Bristol.

As regards the proposition to get up a subscription cup, this was done last year by Mr. Burn, and £3 3s. was paid for the cup won by Mrs. Hayne at Birmingham. I understand that the same is being done this year with every prospect of getting a five-guinea cup, and that will make us, at least for the Birmingham Show, the head of our tribe, for the fortunate winner will have eight guineas.—BLACK EAST INDIAN.

P.S.—Will "JUSTITIA" and his friends help Mr. Burn to make the Birmingham cup worthy of what he thinks our position should be?

### THE POUTER PIGEON.

[The following valuable description of the fancy Pouter has been sent to us, with the engraving, by the Birmingham Columbarian Society.]

In giving our opinions of the essential properties or points of this variety of Pigeon we do not intend, nor is it necessary, to enter into an elaborate disquisition on the origin, antiquity, habits, and beauty of this kind of bird. There is sure to be, and fortunately is, a great diversity of opinion with regard to their position in relation to other Pigeons; yet whatever these various opinions may be, there should be but little difference as to what constitutes a "perfect Pouter." Their merits have been so often discussed, their claims to especial favour admitted, and their beauty acknowledged, that to be ignorant of their points as show birds is, from a fancier's point of view, tantamount to knowing but little of Pigeons generally, as the Pouter has always had a prior claim and the lion's share of encouragement at our exhibitions, so that the fancier ought to be pretty well informed of their qualities and defects.

In noting down our views we cannot well avoid repeating to some extent that which has been written of late upon this subject by several of your correspondents and our fellow fanciers in the north, to the latter of whom belongs, in a great measure, the credit of breeding and maintaining the Pouter in its true character, and also to whom unquestionably belong some of the best birds of this type. Good Pouters are undoubtedly a graceful and attractive kind of Pigeon, and are a great acquisition at whatever shows they may be congregated, as they form a singular and charming contrast to the many other kinds, to the whole of which they are so entirely dissimilar. Their general appearance differs so considerably from that of any other kind of Pigeons, that at a glance they really appear, as often remarked, of no affinity to the Pigeon tribe.

As before said, it is needless to enlarge upon the merit of these birds, as so recently and so well have your readers been acquainted with their points, by those who are evidently well informed upon this breed of Pigeon, that to add much more to

what has been written would perhaps be regarded as superfluous, and only tend to confuse rather than to make clear our views, which are, upon this subject, I think, in unison with those of our Glasgow contemporaries who have preceded us in this matter. It now only seems necessary to give a brief summary, and to supplement such with a representation of a standard Pouter, which will probably furnish that information which an exhaustive volume might fail to do.

**VARIETIES.**—Pouters for exhibition are divided into five varieties—viz., Blue, Yellow, White, Red, and Black. Our engraving represents a cock bird of the first-named kind. There are also Mealy or mixed-coloured Pouters, which are the result of crosses with the other kinds, probably in some cases the amalgamation of the whole, and consequently they are not of a very attractive colour, but are nevertheless very useful birds, as they are generally large and of a vigorous constitution, and are oftentimes introduced with good effect as mates for birds of weaker stock, but of fine feather, for the sake of regenerating them, and keeping up the size and stamina of those of more value.

The primary qualities of a show Pouter are FORM, SIZE, COLOUR and MARKINGS.

They may be described briefly thus: First, they should be of slender and graceful construction; secondly, they should be of large size, but not unwieldy; thirdly, they should be pure, rich, and uniform in colour. Their general formation, or structure, may be further explained as follows. They should have a large and round crop, narrow girth, and long pinions, the points of which should meet over the tail, but by no means should they cross each other, for when such is the case the birds' butts or shoulders become prominent, and so detract from the apparent size of the crop and slenderness of girth. This defect is oftentimes noticeable in birds that are heavily feathered on the legs or vulture-hooked, and as a consequence generally lose that long stride and important bearing which is so attractive in a good Pouter. The long-muffed ones invariably strut about in an awkward and stumbling manner, carrying their body in too horizontal a position, lifting high their legs, crossing their wings, and appearing as though they were stepping through water and were desirous of passing through unspotted. This is one of the reasons why the heavily muffed birds do not find the favour their brethren with downy-clothed legs so often and so reasonably lay claim to.

The **LEGS** of the Pouter should be long, measuring about 7½ inches, the outline of which should be neatly, but entirely hidden with smooth feathers, extending to the end of the toes, similar to a Grouse; in fact, they are not unfrequently called "Grouse-legged."

The **ENTIRE LENGTH** of a good Pouter cock should be 20 inches, from the end of the beak to the extremity of the tail; the hen birds, of course, are smaller.

The **BACK**, of necessity, must be straight. The high-backed, or humped-backed ones, are very ugly, and generally have also flabby crops, which they are incapable of fully inflating, but which hang loosely down, much to their disfigurement, and however good in other points or pedigree, can only be regarded as defective specimens.

The **SIZE** of the Pouter should be large; but it may be remarked, that although apparently of great size when seen at large, yet when taken in hand they will be found much smaller than would be supposed, as their apparent large proportions are considerably enhanced by the quantity of wind, legs, and feathers, of which they are in a great measure composed.

The **HEAD** of the Pouter should be neat, and not large or coarse, as too often seen; the forehead should be high and prominent, and somewhat suddenly receding downwards to the ear; the beak is rather Dove-shaped, the wattle thereon small and regular; and the eye without any fleshy substance more than is observable in the majority of Pigeons.

**BLUE POUTERS** should be of a clear and bright colour, a shade darker upon the head, neck, and tail than elsewhere; the sides of the wings, breast, and back should be blue, descending from the neck and terminating in a distinct line from thigh to thigh; the wing coverts (as in nearly all Blue Pigeons), should be crossed with two black bars, there is also a black band nearly at the edge of the tail; on the sides of the wings and near to the shoulder should be a few white feathers as represented in the engraving, these are called the rose, and when good and distinct are a great set-off to a Pouter. An important feature also in the markings of a Pouter is a clear white and well defined crescent upon the front of the crop or globe.

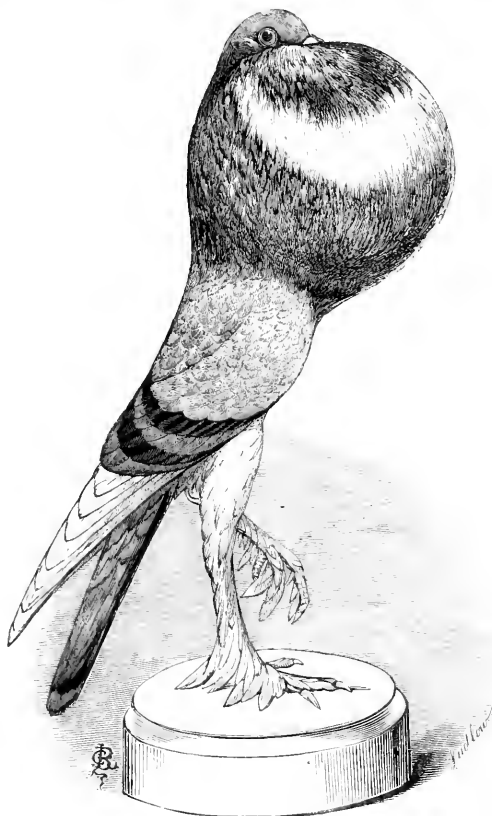
**YELLOWS, REDS, and BLACKS** with their respective colours

should be marked in a similar manner as Blues; they should be rich, bright, and uniform in colour, not dappled and uneven, as observed by far too frequently.

WHITES should, of course, be entirely and purely white, their eyes should be dark; the eyes of the other varieties, it should have been said, must be red. There are sadly too many examples of the Pouter, like the Jacobin, possessing one of a sort, or each eye half and half, which to our mind is a great blemish.

The COLOUR and MARKINGS of Pouters have become, and

properly so, an important consideration now with fanciers; and whilst we hold of paramount importance the general structure of the Pouter, still we contend that fanciers do well to insist upon the whole standard, and not on a part thereof only, as essential to the show Pouter, and that we should strive as zealously for all its points, and look upon one as essential to the other, and to regard the loss of such important features as colour and markings greatly derogatory and out of character to a show bird. We have had of late so many mealy, mismarked, bad-coloured, gouty, coarse, Runtish-looking specimens, that we



are satisfied that there is yet room for improvement, and warning us not to be content that one cardinal point is obtained at the sacrifice of another. Yes, we are assured there is abundant room for improvement, and we would urge our fellow fanciers

to strive for the whole standard, in order that we may (instead of two and three), furnish our exhibitions with scores of perfect Pouters, so that this class may prove worthy the great encouragement afforded to their cultivation.

#### BEEES BREEDING IN SUPERS—DRIVING.

SEEING in your Journal that a super was taken off a hive on June 4th, you may, perhaps, be interested to know that on May 18th I cut a hole in the top of an old straw hive, and put on an octagon glass super bought of Mr. Lee, Windlesham. On June 12th I took this off, and found that it contained 9 lbs. of honeycomb. The same day I put on another super, and the bees are now busily at work filling that, but being a straw box with only a piece of glass let in on one side, how am I to tell when it is full? In the super I took off I found that only 5½ lbs. of the comb were fit to use, the rest being filled with

young bees and grubs. I had great difficulty in making the bees leave, and had to brush a great many out. Now, will not the bees be injured by so much brood perishing? Would it have been a better plan on finding there was brood to return the super? I could not tell before taking it off, for all the comb looked white, and I found the brood was in the centre of every comb. Do you think that supers with slits for communication from the hive are less liable to this, and how wide should the slits be to give enough air? In a glass Woodbury hive seven out of nine bars are nearly filled, the swarm was

only put in on the 2nd of June. Do you think I may put on a super this season? There is a bill with a great deal of heather on it rising about 4 feet close to the house, do you think that bees will find their way there in the autumn? In such a case, what would be the latest time for putting on a super?

Do you think I might drive a stock out of an old hive now into a new empty one, adding a condemned stock in the autumn? The stock I wish to drive has been hanging out since May, but has not swarmed.—R. L. S.

[You can only judge of the state of the straw super by what you can see of its interior through the piece of glass let in on one side. If it was worked brood which you found in the octagonal glass super it would have been better to have returned it and to have let it remain until hatched out: if, on the other hand, it was only drone brood, no harm will have been done by its destruction. Supers with side communication through long half-inch slits are not so likely to be bred in as those which are placed over a central aperture. You may try a super on the Woodbury hive, and it had better be put on at once.]

If the bees be driven out of an old stock three weeks after the issue of the first swarm, little or no brood will be sacrificed: at any other time we should advise combs and all being transferred to a frame hive in the manner described in our number published on the 22nd of July last.]

### OUR LETTER BOX.

**Poultry Food (Berkhamstead).**—We only know of it through the advertisements, and do not know where it can be obtained locally.

**Fence against Poultry (T. S. J.).**—Galvanised iron wire netting is the best, and as the meshes are very fine, it is cheap. Have it on the top, or the fowls will fly on it. The netting should be 5 or 6 feet high.

**Food for Chickens (T. S. J.).**—It is not essential that chickens should have meat at all, but it is good if it can be conveniently given. Few persons can at all times command everything we name; our object in naming so many is to give choice, that they may have some of them at hand. Groat is better than bruised oats. Fowls like oats only when they are ground. Bullock's liver will do, but it is not necessary; there are few houses where there are not scraps of meat sometimes, and when such is the case, it makes good food. It is seldom necessary to buy meat for chickens.

**EAST INDIAN DUCKS (W. R. P.).**—You cannot breed them too small. The colour should be pure black, covered with bright green metallic lustre. The bill and feet should be dead black, of the drake as nearly so as possible, but it has been found that the duck is better for weight, but if no larger than Widgeon, so much the better. The legs should be black, but they have a yellowish tinge, seen as it were through the black. To remove the first joint would neither disqualify the bird, nor prevent it from being sold, but we have never found it necessary to prevent their having their full liberty, as they show no disposition to go away.

**GOLDEN-PENCILED HAMBOURGERS (Forest Hill).**—Pencilled Hamburgs are good fowls, but not these we should choose to keep in confinement. They do better where there is a run. Brahmas, Cochins, Spanish, or La Fliche, will suit you better. It is useless for setting eggs; if, therefore, you do so, do so at once. We know no one in your neighbourhood to whom we can recommend you.

**LICE ON FOWLS (Yorkshire).**—Lice on fowls produce all sorts of anomalous disorders, but the case is sometimes reversed, and the lice are the consequence of the disease. A bird in bad condition is prone to breed all sorts of parasites, lice feeding will induce lice, and preserved in will cause death. Those on the head of your fowls may be killed by dropping some powdered camphor on them, or by the application of oil. Put some oil thickly round the lice with a camel-hair brush, and then smother the infested part with strong camphor. That will dispose of the lice, then feed well on ground oats slaked with milk, cooked meat chopped fine, bread and beer, and give them some beer to drink.

**Eggs not Hatching (Sir-names Scherbert).**—The eggs were not sufficiently wetted, or at some time the hen sat off her nest for hours. We should attribute the failure to the latter cause. It is at the same time well to bear in mind we have had an unusually dry time, which is always trying to hatching.

**Time for Sittin Turkeys and Geese (E. A. P.).**—The earlier the better. If possible to bring out all the birds you name to May, is an expensive and expensive. It is also to insure success. Many Geese are hatched in April. Both Geese and Turkeys often have second hatches, which make good table birds, but they are not good for breeders. It may be laid down as a rule, that the chickens died at any time, but breeders should be those that have had everything in their favour.

**SPANIOL HAMBOURG CHICKENS (Perthshire).**—Your chickens are dying of weakness. As you say the hen has left them, it is fair to suppose she was at liberty, yet the chickens are now but six weeks old. No hen should be hatched till the chickens can shift for themselves, and the Hamburghs cannot do that at six weeks. They have lost the brooding of the hen, and consequent warmth at night, and the food you give is not good enough to compensate for it. We are tired of telling people that hot food is the dearest, sharpest, and potatoes, nothing can be worse. We do not want the chickens dried up. We want any live food, the chickens meal mixed with milk, if possible—if not, with water; a little chopped egg, bread and milk, chopped meat scraps, groats, and when the mother has left them, a little bread and ale. Give your old birds meal in the morning, and meal in the evening.

**HOUDAN POINTS (W. W.).**—Houdans should be square-built, short-legged fowls. Their legs should be black or very dark blue and white angled; they should be five-clawed. The plumage should be black and

white, the more regular the spangling the better. No other colour is admissible in the hen, but in the cock a few straw-coloured feathers will show at times. They are overlooked, but red ones are disqualifications.

**HEENS LAYING SORT EGGS (Berkhamstead).**—Your case is not an uncommon one at the end of the season; only soft eggs are dropped in that way. If your hens have no access to food, or if they have no run, give them some bricklayers' rubbish, old mortar ceiling, &c. If you are feeding on soft food, feed for a day or two on whole barley.

**SILVER PHEASANT LAME (C. L. W.).**—We fear your friend's case is a bad one, and incurable. It is a case of catarrh, and probably arises from some injury to the thigh. It is not a disease naturally, but we have never known it cured after the toes were drawn up and the leg began to wither.

**BRAMA POUTER'S HEAD BENT BACK (Noz.).**—A small blood-vessel has burst on the brain. Keep him quiet and separated from the other fowls. Feed him on soft food, such as meal, potatoes and a little barley meal; give him plenty of lettuce leaves also. The blood may be absorbed. If the anæmorrhoea increases it will kill him.

**WATER IN PIGEON'S CROP (H. L. S.).**—We do not see that you can do better than repeat the plan you have adopted, as you see necessary. A grain of calomel in a bread pill might do good.

**POULTRY AND A PREFERENCE.**—You mention a Bullfinch—rape and canary seed, about two-thirds of rape and one of canary, and a small quantity of hempseed mixed, occasionally a little fruit, such as a cherry, piece of apple, &c., and groundsel. Too much hempseed will cause the fowls to fall off, or if the bird catch cold that will likewise have the same effect.

**BEES NOT THRIVING (Scotty).**—We doubt not that your hypothesis is correct, and that your bees have swarmed without being perceived.

**Drawn Bees of 17th June (T. S. J.).**—The proceedings described in our columns. The required information may also be found in page 60 of the last edition of "Bee-keeping for the Many," which may be had post free direct from this office for five stamps.

**BEES IN ALTON HIVE.—E. G. M.**—I am sorry to have a difficulty in making the bees in the Alton hive take to the drawers. I have found that if a small piece of guide comb be fastened at the top of each drawer, the bees will readily take to it; or, if the bees take to the bottom drawers and not to the top ones, put in the slides, and with a zinc plate shift a full drawer to the top and an empty one to where the full one partially full one has been moved from. The bees will take to the empty drawer at the bottom, and not leave that at the top. Both stocks of bees doing well is a proof that they are not infested by the wax moth. I have some honey-comb that is in use, though twenty years old.—J. GALE, Alton.

**BEES SWARMING (A Sussex Apiarian).**—There is nothing very remarkable in bees preferring to swarm instead of working in supers, although they are doubtless somewhat capricious, varying their proceedings in this as well as in many other respects at different times without apparent cause.

### COVENT GARDEN MARKET.—JUNE 29.

The improvement of last week in our general market has been maintained, and a large amount of goods has exchanged hands in the wholesale trade, consignments being heavy from the South of Europe and the Channel Islands. A sixth cargo of West India Fines has arrived in good condition, and is now at auction. Sicilian, a quantity of, and house produce sufficient for the trade. Good round Potatoes are in much request.

#### FRUIT.

	a.	d.	s.		a.	d.	s.
Apples.....	1	0	0	Mulberries.....	quart	0	10
Apricots.....	doz.	2	0	Nectarines.....	doz.	0	15
Cherries.....	lb.	0	6	Oranges.....	per 100	0	14
Chesham.....	bushel	4	0	Peaches.....	doz.	10	0
Currants.....	1	0	0	Pears, kitchen.....	doz.	0	0
Black.....	do.	0	0	Pears, dessert.....	doz.	0	0
Figs.....	do.	0	10	Pine Apples.....	lb.	1	0
Filberts.....	lb.	0	0	Plums.....	1	0	0
Cobs.....	lb.	0	1	Quinces.....	doz.	0	0
Gooseberries.....	quart	0	0	Raspberries.....	lb.	0	1
Grapes, Hothouse.....	lb.	0	8	Strawberries.....	lb.	1	0
Lemons.....	per 100	6	0	Walnuts.....	bushel	10	0
Melons.....	each	2	0		per 100	1	0

#### VEGETABLES.

	a.	d.	s.		a.	d.	s.
Artichokes.....	doz.	3	0	Leeks.....	bunch	0	4
Asparagus.....	per 100	3	0	Lettuce.....	doz.	0	1
Beans, Kidney.....	doz.	0	6	Onions.....	doz.	0	6
Broccoli.....	bushel	1	0	Mustard & Cress.....	punctet	0	2
Beet, Field.....	doz.	2	0	Onions.....	bushel	4	0
Broccoli.....	doz.	0	6	Potatoes.....	doz.	0	0
Brussels Sprouts.....	1	0	0	Parsley.....	doz.	0	0
Cabbage.....	doz.	1	0	Parsnips.....	doz.	0	1
Capicium.....	doz.	1	0	Pears.....	doz.	1	0
Carrots.....	doz.	0	2	Potatoes.....	bushel	4	0
Cardinalflower.....	doz.	2	0	Raspberries.....	doz.	0	8
Celery.....	doz.	0	6	Raspberries.....	doz.	0	8
Coleworts.....	doz.	0	6	Rhubarb.....	bushel	4	0
Cucumbers.....	each	0	1	Savory.....	doz.	0	0
Cress.....	doz.	0	6	Spinach.....	doz.	0	0
Endive.....	doz.	2	0	Spinach.....	doz.	0	0
Fennel.....	bunch	0	3	Spinach.....	bushel	3	0
Garlic.....	doz.	0	6	Tomatoes.....	doz.	1	0
Herbs.....	bunch	0	3	Turnips.....	bunch	0	1
Horsedruidish.....	bushel	3	0	Vegetable Marrows.....	doz.	0	0

### POULTRY MARKET.—JUNE 29.

We are still in the same state at market. Trade has been better, and prices are maintained higher than usual. There was much poultry spoiled during the extreme heat.

	a.	d.	s.		a.	d.	s.
Large Fowls.....	4	6	0	Guinea Fowls.....	0	0	0
Smaller Fowls.....	4	0	6	Pigeons.....	0	8	0
Chickens.....	2	0	6	Rabbits.....	1	8	1
Ducklings.....	2	0	6	Wild Ducks.....	0	2	0
Geese.....	5	6	0	Hares.....	0	0	0
Turkeys.....	0	0	0	Partridges.....	0	0	0









